Proposed Plan

For Finding of Suitability for Early Transfer (FOSET) # 2 – Action Sites at the Former McClellan Air Force Base

United States Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, CA, 94105

JANUARY 2014

A. Introduction

The U.S. Environmental Protection Agency (EPA), in consultation with the California Department of Toxic Substances Control (DTSC) and the Central Valley Regional Water Quality Control Board (Central Valley Water Board), is issuing this **Proposed Plan**[1] for the **Action Sites** within **Finding of Suitability for Early Transfer** (FOSET) # 2 at the former McClellan Air Force Base (now known as McClellan Park). The EPA is requesting public comment on the **preferred alternatives** for 43 sites within an area known as **FOSET # 2**. This plan summarizes the history, cleanup process, and rationale for the preferred remedial alternatives for these 43 sites and fulfills the requirements of the **Comprehensive Environmental Response, Compensation, and Liability Act** (CERCLA) §117 (a) and the **National Oil and Hazardous Substances Pollution Contingency Plan** (NCP) §300.430(f)(2).

The community is invited to ask questions about the Proposed Plan and to learn more at a public meeting on January 21, 2014, at 6:30 PM, at the North Highlands Recreation Center. Information about the public comment period and the public meeting are shown below. The EPA invites you to review and comment on the Proposed Plan during this period, and also invites you to review material, ask questions, and participate in making final decisions about the preferred alternatives presented in this Proposed Plan. The EPA will review all comments and formalize the decision in the FOSET # 2 Action Sites **Record of Decision** (ROD).

How You Can Be Involved

Public Comment Period

- January 6 through February 7, 2014

Mail (or e-mail) your written comments to:

Bob Fitzgerald
Remedial Project Manager
U.S. Environmental Protection Agency
75 Hawthorne Street SFD-8-1
San Francisco, CA 94105
(415) 947-4171
fitzgerald.bob@epa.gov
http://www.epa.gov
(866) 372-9378

Comments must be received by February 7, 2014.

Public Meeting

- January 21, 2014: 5:30 PM – Poster Session, 6:30 PM – Public Meeting

North Highlands Recreation Center
6040 Watt Avenue
North Highlands, CA 95660

During the public meeting, the EPA will present and explain the information contained in this Proposed Plan. You will be able to ask questions and tell EPA representatives what you think about the cleanup alternatives. The EPA will accept written and oral comments and respond to them in the final decision document. A final cleanup decision will not be made until all comments are considered.

For additional information, or to obtain another copy of this Proposed Plan, contact Viola Cooper, EPA Community Involvement Coordinator, at (415) 972-3243 or cooper.viola@epa.gov.

1 To assist the reader, as each key term is introduced, it appears in **bold type**. A glossary of key terms is provided on page 15 to 18.

Table of Contents

Section.....Page

Figures

Tables

The 43 FOSET # 2 Action Sites consist of **Installation Restoration Program** (IRP) sites (Table 1) located around McClellan Park (Figure 1). This Proposed Plan summarizes the cleanup process; describes past cleanup actions, investigations, and studies that the Air Force has performed at the FOSET # 2 Action Sites; and identifies the preferred remedial alternatives the EPA and the State believe are protective of human health and the environment. The sites discussed in this Proposed Plan come from larger site groupings known as the Follow-on Strategic Sites, Small Volume Sites, and Building 252 Sites. Most of the IRP sites from these groups that are located within the FOSET # 2 are now being addressed through a private-sector cleanup by McClellan Business Park, LLC (MBP); the remainder of the IRP sites within these groups will continue to be addressed by the Air Force until they are transferred to MBP.

Table 1 – 43 FOSET # 2 Action Sites

Follow-on Strategic Sites	Building 252 Sites	Small Volume Sites			
Area of Concern (AOC) G-3	Confirmed Site (CS) T-030	CS 038	CS T-020	PRL S-019	SA 080
AOC G-4	PRL S-018	CS 040	CS T-021	PRL S-025	SA 096
AOC G-5		CS B-005	CS T-036	PRL S-036	SA 097
Potential Release Location		CS S-007	CS T-047	SA 045	SA 100
(PRL) S-043		CS S-024	CS T-057	SA 049	SA 107
PRL S-044		CS S-026	PRL S-001	SA 055	SA 109 (F2)
PRL S-045		CS T-012	PRL S-002	SA 060	
PRL T-032		CS T-016	PRL S-006	SA 063	
Study Area (SA) 004		CS T-017	PRL S-017	SA 066	

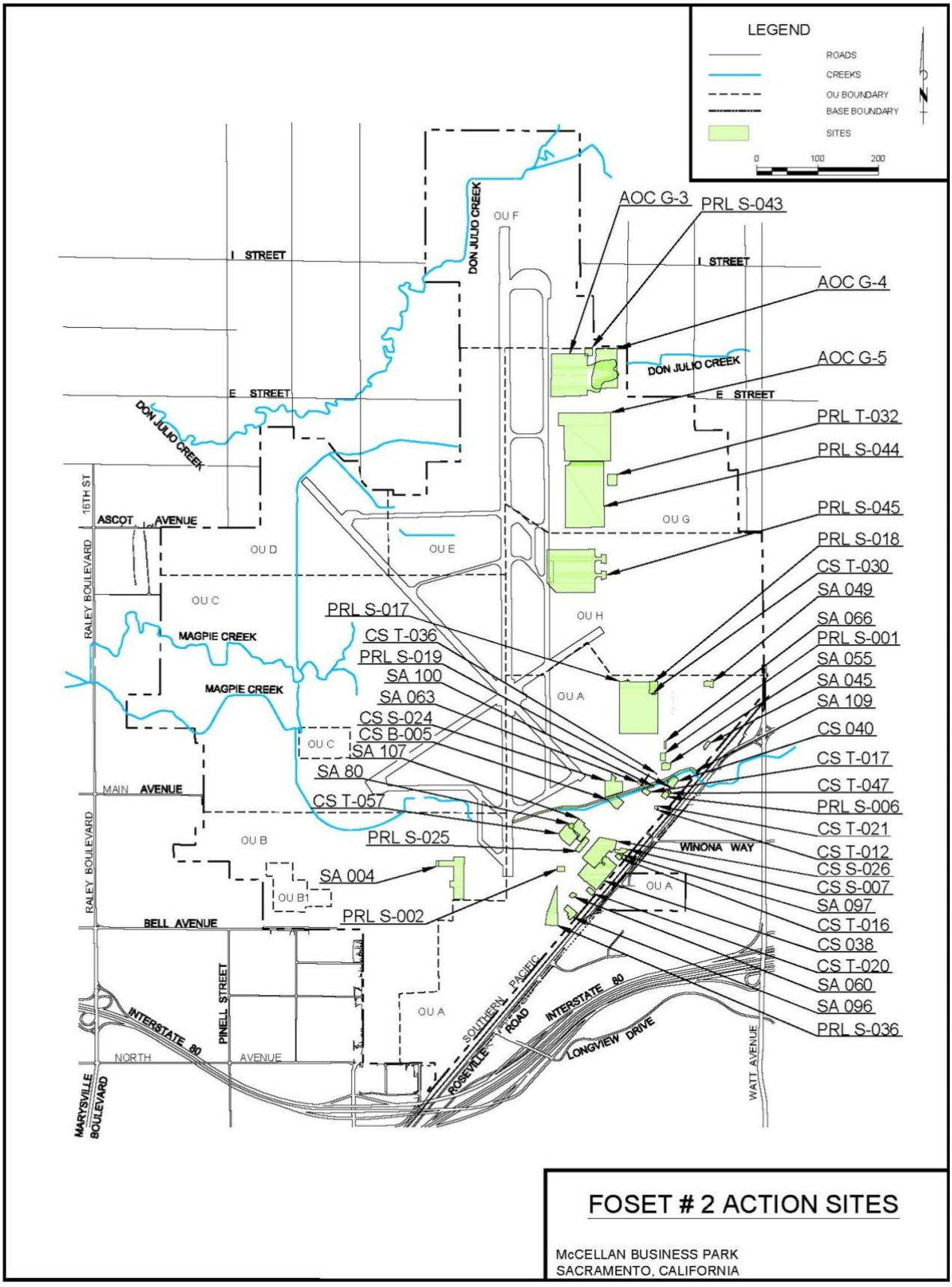

Figure 1 – FOSET # 2 Action Sites Location Map

B. History and Site Background

The former McClellan Air Force Base (AFB), now McClellan Park, encompasses about 3,000 acres and is located 7 miles northeast of downtown Sacramento, California. McClellan Park is surrounded by the City of Sacramento to the west and southwest, unincorporated areas of Antelope on the north, Rio Linda on the northwest, and North Highlands on the east (Figure 2).

Between 1936 and 2001, McClellan AFB was an aircraft repair depot and supply base. Contamination exists within certain areas at McClellan Park as a result of the Air Force storing and using industrial solvents and cleaners, aviation fuels, and a variety of oils, lubricants, and other materials at the property. Due to past disposal practices, spills, releases, and leaking tanks and pipelines, groundwater contamination is present and was first detected in 1979. In July 1987, McClellan AFB was listed on the **National Priorities List** as a Superfund site.

The Air Force initiated the process outlined in CERCLA for hazardous waste site cleanup (see Figure 3). Under CERCLA, the Air Force funds cleanup actions at McClellan Park.

The Air Force has transferred the property in FOSET # 2, including the sites in this Proposed Plan, to MBP via a FOSET. The FOSET identifies any environmental concerns associated with property transfer. FOSET # 2 was approved by EPA and the State in January of 2013. The sites addressed in this Proposed Plan are located within FOSET # 2. MBP will be implementing the cleanup. The EPA, as lead oversight agency, will be responsible for enforcement and oversight of the FOSET # 2 Action Sites cleanup in consultation with DTSC and the Central Valley Water Board.

The 43 FOSET # 2 sites presented in this Proposed Plan have been designated as Action Sites. **Contaminants of concern** (COCs) were detected above screening levels at concentrations that pose an unacceptable risk to human health or the environment. Therefore, cleanup actions will be required for soil, including soil contaminated by **radionuclides**, and **soil gas** contamination. For sites located within 100 feet of an industrial waste line (IWL), the restrictions placed on the IWL will likely effectively restrict use of these sites as well.

The Action Sites and the rationale for their preferred remedial alternatives are presented in Table 2 (located at the end of this Proposed Plan). Further information regarding the Action Sites and previous response actions are provided in the *Final Follow-on Strategic Sites Remedial Investigation Characterization Summary and Feasibility Study* (McClellan Administrative Record [AR] #7326), *Final Small Volume Sites Remedial Investigation Characterization Summary and Feasibility Study* (McClellan AR #7572), *Building 252 Remedial Investigation Characterization Summary and Feasibility Study* (McClellan AR #7167), *Radiological Remedial Investigation of Multiple Existing CERCLA Sites* (McClellan AR #6565), and *Final Action Memorandum for the Small Volume Sites and Building 252 Radiological Removal Action*

McClellan Information Repository Locations

Air Force Civil Engineer Center:

McClellan AFB Administrative Record
3411 Olson Street, Building 10
McClellan, CA 95652
(916) 643-1742 ext. 201
Appointments available from 8:00 a.m. to 3:00 p.m., Monday through Friday

Also available online at:
http://afrpaar.lackland.af.mil/ar/docsearch.aspx

North Highlands-Antelope Library:

4235 Antelope Road
Antelope, CA 95843
(916) 264-2700
http://www.saclibrary.org

Hours:

- Tuesday and Wednesday: 10:00 a.m. to 8:00 p.m.
- Thursday: 10:00 a.m. to 6:00 p.m.
- Friday: 1:00 p.m. to 6:00 p.m.
- Saturday: 10:00 a.m. to 5:00 p.m.
- Sunday and Monday: Closed

EPA Region 9 Superfund Records Center:
95 Hawthorne Street
San Francisco, CA 94104
Hours: Monday – Friday, 8:00 a.m. to 5:00 p.m.

(McClellan AR#7558). These documents, along with other documents comprising the **Administrative Record** (AR), are available in the **Information Repository** locations identified in the box on the previous page.

Figure 2 – Map of McClellan Park

C. Site Description

The predominant current land uses at McClellan Park are office, industrial, and aviation (Figure 1). Surface features at the Action Sites include open grassland, drainages, and vernal pools, as well as industrial and runway areas.

D. Cleanup Process

The EPA, as lead oversight agency, has prepared this Proposed Plan which has received the concurrence of both the DTSC and the Central Valley Water Board. This plan fulfills the requirements of CERCLA §117 (a) and the NCP §300.430(f)(2). CERCLA is commonly referred to as Superfund.

The cleanup of FOSET # 2 is happening through a process called **Privatization**, by which the U.S. Air Force provides cleanup funds to a new owner with the goal of speeding up redevelopment of property. MBP, the new owner and developer, is required to investigate and cleanup, where deemed necessary, **volatile organic compound** (VOC) and **non-VOC** contamination in the top 15 feet of soil. The EPA determination of the preferred remedial alternatives for the 43 subject sites is based on years of technical investigation and analysis by the U.S. Air Force with EPA oversight and consultation with the DTSC and the Central Valley Water Board. Privatization does not affect the U.S. Air Force's duty to clean up contamination in soil below 15 feet or in **groundwater**.

As part of CERCLA, as illustrated in Figure 3, the Proposed Plan is followed by the ROD, in which the final decision is documented and described in detail. The ROD will also include a **Responsiveness Summary,** which provides responses to comments received from the public during the public comment period.

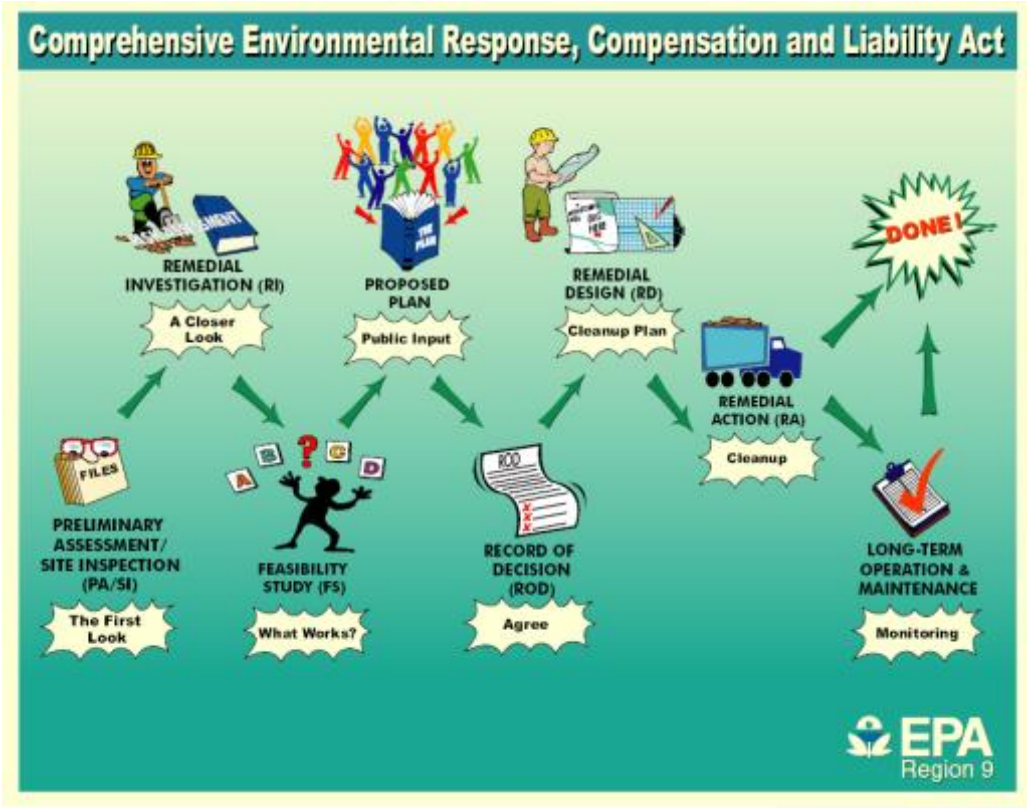

Figure 3 – CERCLA Process Flow Diagram

E. Scope and Role of the Proposed Plan

This Proposed Plan supports the forthcoming FOSET # 2 Action Sites ROD. The Proposed Plan summarizes the evaluation of cleanup alternatives for addressing VOC contamination in **shallow soil gas** (SSG) and non-VOC contamination in soil at the 43 Action Sites and presents the EPA's preferred remedial alternatives. A forthcoming Proposed Plan/ROD will also be developed for the FOSET # 2 No Further Action and Institutional / Engineering Control Sites.

While treatment technologies to permanently reduce toxicity, mobility, and volume of source materials are preferred, no alternatives with permanent treatment technologies were carried forward in the Proposed Plan. However, the selected preferred alternatives are judged to be protective of human health and the environment, and their effectiveness will be reviewed every five years in a Five Year Review Report.

This Proposed Plan addresses contamination in the upper 15 feet of soil. The Air Force is responsible for soil contamination below 15 feet and groundwater contamination. While several of the FOSET # 2 Action Sites are located within the influence of existing **soil vapor extraction** (SVE) systems (operating under the McClellan SVE Program), the existing SVE systems are not intended to remediate shallow soil gas but instead operate for the protection of groundwater. Radiological contamination is being addressed by the Air Force through removal actions. However, pending confirmation of removal cleanup, this Proposed Plan includes and addresses this contamination. Upon confirmation that radiological contamination has been removed, the FOSET # 2 Action Sites ROD will be amended to address only non-radiological contamination that remains.

F. Summary of Site Risks

The rationale for selecting a preferred remedial alternative can be supported by evaluating the risks to both human health and ecological receptors (i.e., plants and wildlife) posed by identified contaminants. Evaluating risk is a scientific process, referred to as a **risk assessment**, which uses both facts and assumptions to evaluate potential adverse effects on human and ecological health from exposure to chemicals. The health risks posed by the site help determine whether or not a cleanup action is needed.

For humans, the likelihood of any kind of cancer resulting from exposure to a contaminated site is generally expressed as a probability, for example, "1-in-1,000,000 or one-in-one-million." In other words, for every one million people who are exposed over an assumed period of 30 years, one extra cancer case could occur as a result of exposure to a certain contaminant. The EPA target risk range is between one-in-one-million and one-in-ten-thousand. Depending on site-specific factors, cleanup is considered when risks are greater than one-in-one-million but is generally required when risks are greater than one-in-ten-thousand.

For humans, risk analyses also consider non-cancer hazards through the use of the **hazard index** (HI). If the HI is greater than 1, people are exposed to levels of contaminants that may pose a **non-cancer health risk**. Specific non-cancer health risks depend on the type of contaminant. For humans, some non-cancer health risks can include kidney disease, nervous system damage, anemia, dizziness, and headaches. Depending on site-specific factors, cleanup is generally required when the HI is greater than 1.

Land uses contribute to how people are potentially exposed to contamination. The planned land uses for the FOSET # 2 Action Sites are primarily industrial, retail, warehouses, and offices. Based on the future planned land use, the potential receptors likely exposed to site contamination include occupational workers and construction workers. However, to be conservative, risks to potential future residents were also considered and calculated. In addition, impact to offsite ecological habitat was evaluated.

The exposure routes (i.e., different ways people might be exposed to contaminants) evaluated in the risk assessments for humans include incidental soil ingestion, inhalation of particulates which had previously settled (e.g., dust, wind-erosion), inhalation of indoor and outdoor air, and dermal contact with soil. For potential future residents, the ingestion of homegrown produce was also considered. Exposure routes evaluated for SSG include the **vapor inhalation pathway** (contaminants in the soil volatilize into soil gas, migrate into buildings, and are inhaled by the occupants) and direct contact pathways (e.g., ingestion, dermal contact, and outdoor inhalation).

Contaminants in soil can migrate to surface water and/or groundwater, possibly resulting in unacceptable impacts to water quality. The potential for unacceptable impacts to water quality was evaluated for the FOSET # 2 Action Sites. This evaluation was completed by screening the soil data against the estimated soil concentrations that could result in contaminants in surface water or groundwater at unacceptable concentrations. Contamination at some of the sites poses a potential threat to surface water and/or groundwater quality. Contamination in groundwater beneath these sites has been evaluated and addressed separately in the Basewide VOC Groundwater ROD and Non-VOC Amendment to the Basewide VOC Groundwater ROD.

In Table 2, risks in SSG and soil are presented, where available, and help provide rationale for the preferred remedial alternatives. Risks are presented as either below the risk management range (i.e., risks are less than 1-in-1,000,000 and the HI is less than 1), within the risk management range (i.e., between 1-in-1,000,000 and 1-in-10,000 and the HI is less than or equal to 1), or above the risk management range (i.e., risks are greater than 1-in-10,000 and/or the HI is greater than 1).

For the sites presented in Table 2, it is the EPA's current judgment that the preferred alternatives identified in this Proposed Plan are necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

Risk assessments for each IRP site were performed by the Air Force and the results are presented in the Follow-on Strategic Sites FS, Small Volume Sites FS, and Building 252 FS. In these risk assessments, the Air Force used facts and assumptions consistent with current and future reuse of the property, and the risk assessments remain valid for privatized cleanup. However, in some instances a more conservative remedial alternative may better support MBP's intended use of the property. For example, even though the risk assessment may indicate that risks are within the risk management range and the HI is less than 1 at an IRP site, the removal of soil with contaminants above the **cleanup levels** (CLs) may be more beneficial to redevelopment of the property. The Air Force FSs do not take into consideration that property with contaminants above CLs is not as desired by prospective buyers or lessees.

G. Remedial Action Objectives

Remedial action objectives (RAOs) define the extent to which the sites will require cleanup to meet the objectives of protecting human health and the environment. The first RAO is for the protection of human health to eliminate or reduce inhalation, ingestion, direct contact, and external exposure to SSG and soil in the upper 15 feet posing an excess cancer risk greater than the EPA target risk range (one-in-one-million to one-in-ten-thousand) and/or an HI greater than 1. The second RAO is to prevent impacts to surface water and groundwater quality from contaminants in soil. The third RAO is the protection of ecological receptors.

RAOs serve as goals established for protecting human health and the environment at sites where the EPA proposes an action. Because of the nature of the Action Sites, proposed cleanup actions will be based primarily on CLs for human health. However, where needed, cleanup actions may also be based on CLs for water quality. CLs represent the contaminant concentrations in soil or sediment that, if achieved, would reduce or minimize potential risk to human health and the environment. For human health, two sets of CLs were considered. The first set protects

human health for **unrestricted land use**, also known as "residential use." Unrestricted land use allows for anything to be built, including sensitive uses such as homes and schools. The second set protects human health for industrial use and would allow commercial or industrial activities. The second land use category is a **restricted land use**, also known as "industrial use" category, and does not allow for construction of homes, day care centers, or similar facilities. The CLs are generally based on a cancer risk of one-in-one-million and/or an HI of 1, whichever is more protective.

H. Summary of Remedial Alternatives

Remedial alternatives that meet the RAOs are assembled and identified in the **Feasibility Study** (FS) phase of CERCLA. The seven remedial alternatives evaluated are Alternative 1—No Further Action, Alternative VOC2—**Institutional Controls** to Prohibit Residential Use (Restricted Land Use), Alternative VOC3—Institutional Controls to Mitigate Shallow Soil Gas Contamination (Restricted Land Use), Alternative VOC4—Soil Vapor Extraction (Restricted Land Use), Alternative Non-VOC2—Institutional Controls, Engineered Controls, and Monitoring (Restricted Land Use), Alternative Non-VOC3 – Bioventing (Restricted Land Use), Alternative Non-VOC4a—Excavation and Disposal (Restricted Land Use), and Alternative Non-VOC4b—Excavation and Disposal (Unrestricted Land Use). These alternatives are summarized below.

The following alternatives were evaluated for VOCs in SSG (Alternative 1, VOC2, VOC3, and VOC4) and for non-VOCs in soil (Alternative 1, Alternative Non-VOC2, Alternative Non-VOC3, Alternative Non-VOC4a, and Alternative Non-VOC4b).

- **Alternative 1 – No Further Action.** CERCLA and NCP require the evaluation of a No Further Action alternative to establish a basis for comparison with other alternatives. No remedial activities are implemented under this alternative. No cost is associated with this alternative. The No Further Action alternative does not reduce risk to human health or the environment.

- **Alternative VOC2 – Institutional Controls to Restrict Land Use. Institutional controls** would be used under this alternative to eliminate or limit **exposure pathways** to humans where site contamination levels would not allow for safe unrestricted use and unlimited exposure. This alternative would restrict land use such that the property may not be used for sensitive uses such as homes, other residential use, day care centers, health care centers, or schools within the contaminated portion of the property. Through specific deed restrictions and a **State land use covenant** recorded on the property subject to this remedy, unrestricted use of the property will be prohibited.

- **Alternative VOC3 – Institutional Controls to Restrict Land Use and Engineered Controls to Mitigate Shallow Soil Gas Contamination.** Institutional controls would be used to mitigate the potential for VOCs in SSG to migrate into buildings and impact occupants via the vapor inhalation pathway. This alternative would restrict land use such that the property may not be used for sensitive uses as described for Alternative VOC2. In addition, the institutional controls under Alternative VOC3 would require the installation of engineered controls (such as vapor barriers, gas collection systems, and/or ventilation systems) in any future buildings or during significant remodeling of existing buildings (e.g., remodeling that requires replacing major portions of the foundation or floor) to mitigate the potential for VOCs in SSG from migrating into buildings and impacting occupants via the vapor inhalation pathway. The engineered controls requirement could be waived by the regulatory agencies if sampling at the building site demonstrated that risks are acceptable. The specific limitations or prohibitions to be incorporated into the institutional controls would be selected on a site-by-site basis in the ROD. If selected, the institutional controls would be recorded in deed restrictions for the property and in the State land use covenant for the property and unrestricted use of the property would be prohibited.

The engineered controls (e.g., vapor barriers, gas collection systems, and/or ventilation systems) would be implemented at the time of new construction or significant remodeling of existing buildings.

- **Alternative VOC4 – Soil Vapor Extraction and Institutional Controls to Restrict Land Use.** SVE is a process that applies a vacuum to subsurface soil (via extraction wells) to extract contaminated vapors from the soil and flush fresh air through the contaminated soil. As necessary, the extracted vapors are treated to reduce emissions to the air to acceptable levels. Under Alternative VOC4, existing SVE systems (operating under the McClellan SVE Program) would continue to operate at sites containing VOCs in SSG to mitigate the vapor inhalation pathway. If necessary, additional shallow extraction or monitoring wells would be installed to enhance the existing SVE systems, as the existing SVE systems are operated for the sole protection of groundwater and are not intended to remediate SSG contamination. In addition, this alternative would use institutional controls to restrict land use such that the property may not be used for sensitive uses as described for Alternative VOC2 and would require the installation of engineered controls or sampling as described for Alternative VOC3.

- **Alternative Non-VOC2 – Institutional Controls to Restrict Land Use, Engineered Controls, and Monitoring.** Institutional controls, engineered controls, and/or monitoring would be used to eliminate or limit exposure pathways for non-VOCs to human receptors and the environment. The specific type of controls and/or monitoring required for a particular site would depend on the specific characteristics of each site such as the type of contaminants, how people might come in contact with the contaminants, the risk associated with the contaminants, and whether the contaminants could migrate offsite. Monitoring would be implemented in conjunction with, and in support of, other remedies such as institutional controls and engineered controls. The monitoring would be used to show that the remedy protects human health and the environment.

  Institutional controls would consist of any or all of the following: a prohibition on sensitive uses of the property (as described under Alternative VOC2), a prohibition on building slab removal without agency approval, or a prohibition on intrusive activities (such as digging) without agency approval. The specific prohibitions to be incorporated into the institutional controls would be selected in the FOSET # 2 Action Sites ROD on a site-by-site basis.

  Engineered controls would consist of surface cover and/or sediment collection. The maintenance or expansion of existing surface cover (including concrete, asphalt, and building foundations) would be implemented to reduce or eliminate the direct contact pathway and/or potential impacts to surface water. Prefabricated sediment traps would be installed in areas that collect and/or channel storm water runoff to trap and remove residual sediment before it enters natural surface water features (such as creeks). The surface cover engineered control would achieve RAOs immediately upon installation. The sediment collection engineering control would require maintenance and monitoring to evaluate performance and protectiveness.

- **Alternative Non-VOC3 – Bioventing and Institutional Controls to Restrict Land Use. Bioventing** is typically used for sites with fuel-related contamination. The alternative involves pumping oxygen to contaminated soils through the extraction and/or injection of air. As necessary, the extracted vapors are treated to reduce emissions to the air to acceptable levels. The increased oxygen within the subsurface supports naturally-occurring microorganisms within the soil to biodegrade the contamination. Because the contamination would be treated in place, institutional controls and monitoring similar to those described for Alternative Non-VOC2 would be required under Alternative Non-VOC3. Once treatment was completed, the institutional controls and monitoring requirements could be eliminated if unrestricted land use cleanup

levels were achieved. Based on previous bioventing systems that have been installed at McClellan Park, it is estimated that it would take several years for bioventing to achieve RAOs.

- **Alternative Non-VOC4a – Excavation and Disposal and Institutional Controls to Restrict Land Use.** Soil that is contaminated at levels above restricted land use cleanup levels would be excavated and transported for disposal at an appropriate facility. Because some residual contamination would remain at the site, institutional controls similar to those described for Alternative Non-VOC2 would be required. The site would be restricted to industrial or commercial use. Sensitive uses such as residential use, school facilities, and/or day care centers would be prohibited. For sites where residual contamination could impact surface water, engineered controls (such as surface cover or sediment collection) would also be implemented as described under Alternative Non-VOC2 to protect surface water quality.

- **Alternative Non-VOC4b – Excavation and Disposal.** Soil that is contaminated at levels above unrestricted land use CLs would be excavated and transported for disposal at an appropriate facility. Because all contamination above unrestricted land use cleanup levels would physically be removed from the site, no institutional controls or long-term monitoring would be required. Alternative Non-VOC4b would facilitate unrestricted use of the site, including residential use, school facilities, and/or day care centers. For sites where residual contamination could impact surface water, engineered controls (such as surface cover or sediment collection) would also be implemented as described under Alternative Non-VOC2 to protect surface water.

I. Evaluation of Remedial Alternatives

The following nine criteria are used to evaluate the different alternatives and select a preferred alternative:

Threshold Criteria

- Overall protectiveness of human health and the environment
- Compliance with state and federal environmental requirements

Primary Balancing Criteria

- Long-term effectiveness
- Reduction of toxicity, mobility, or volume of contaminants through treatment
- Short-term effectiveness
- Implementability
- Cost

Modifying Criteria

- State acceptance
- Community acceptance

These nine criteria are part of the CERCLA process established to provide a format for selecting appropriate remedial alternatives. The first two criteria, overall protectiveness of human health and the environment and compliance with applicable or relevant and appropriate requirements, are called threshold criteria. These two criteria must be met in order for the alternative to be eligible for selection. The remaining seven criteria, called modifying and balancing criteria, are used to compare the eligible alternatives and help in the selection of the preferred alternative. Balancing criteria are used to weigh major trade-offs among alternatives. Modifying criteria

include state acceptance and community acceptance. Modifying criteria, which may be considered to the extent that information is available during the FS, can be fully considered only after public comment is received on the Proposed Plan. In the final balancing of trade-offs between alternatives upon which the final remedy selection is based, modifying criteria are of equal importance to the balancing criteria. The EPA, in consultation with the DTSC and the Central Valley Water Board, proposes the preferred remedial alternatives during the preparation of this Proposed Plan. The last criterion, community acceptance, is specifically evaluated after the final Proposed Plan is published. The EPA will respond in writing to comments received on the Proposed Plan and describe community acceptance in the Responsiveness Summary section of the FOSET # 2 Action Sites ROD. The preferred alternative can change in response to public comments or new information. All changes from the Proposed Plan will be explained in the FOSET # 2 Action Sites ROD.

J. Preferred Remedial Alternatives

For the 43 subject sites, the EPA has determined the preferred alternatives presented in Table 2 are required for the protection of human health and the environment. While several of the preferred alternatives differ from those presented in the FS, the preferred alternatives presented in Table 2 are consistent with the intended future reuse of the Action Sites. Furthermore, the EPA believes the preferred alternatives will comply with state and federal environmental requirements (called **applicable or relevant and appropriate requirements [ARARs]**), meet the RAOs, and provide the best balance considering the modifying and balancing criteria.

For sites where some contaminants remain after implementation of the preferred alternative, and in accordance with CERCLA, five-year reviews will be performed to make sure the remedy is functioning as intended and is protective of human health and the environment.

The preferred alternative can change in response to public comments or new information. The EPA invites community comments on the preferred alternatives, as well as the other alternatives presented in this Proposed Plan.

Based on information currently available, the EPA believes the preferred alternatives meet the threshold criteria and provide the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. The EPA expects the preferred alternatives to satisfy the following statutory requirements of CERCLA Section 121(b): (1) be protective of human health and the environment; (2) comply with applicable or relevant and appropriate requirements (or justify a waiver); (3) be cost-effective; (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and (5) satisfy the preference for treatment as a principal element, or explain why the preference for treatment will not be met.

K. Community Participation

The EPA provides cleanup information through public meetings; the AR; and announcements or articles published on the EPA website and in newsletters, fact sheets, or community newspapers. The EPA, along with the State regulatory agencies, encourages the public to gain a better understanding of the ongoing cleanup efforts at McClellan Park. Please see the "How You Can Be Involved" and "McClellan Document Information Repository" boxes in Section A and Section B.

To facilitate communication between the EPA and the neighboring community, McClellan Park has an active community relations and public participation program, which includes a **Restoration Advisory Board**. The Restoration Advisory Board consists of stakeholders from the community, regulatory agencies, and the Air Force. The EPA conducts public outreach meetings and speaking engagements with local organizations. The public is invited to attend the next Restoration Advisory Board meeting which will be held on March 18, 2014. For more

information about the McClellan Community Relations Program or the Restoration Advisory Board, contact EPA Community Relations at (415) 972-3243 or e-mail cooper.viola@epa.gov.

The public is invited to review and comment on this Proposed Plan for the FOSET # 2 Action Sites. The EPA invites you to submit your comments on this Proposed Plan in writing to McClellan Community Relations from January 6 through February 7, 2014. A Comment Form with a mailing address is provided at the back of this Proposed Plan for your use. You may also attach additional pages if needed. A public meeting will be held on January 21, 2014, during which the EPA will be available to answer any questions. Verbal comments may be formally submitted and documented during the public meeting. The EPA will prepare written responses to all comments pertaining to this Proposed Plan. Responses to the public comments will be included in the Responsiveness Summary of the FOSET # 2 Action Sites ROD. The ROD will be available in the AR upon publication.

For further information on the FOSET # 2 Action Sites, please contact:

U.S. Environmental Protection Agency

http://www.epa.gov

(866) 372-9378

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California Regional Water Quality Control Board, Central Valley Region

http://www.waterboards.ca.gov/centralvalley
http://www.geotracker.waterboards.ca.gov

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Department of Toxic Substances Control

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USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the FOSET # 2 Action Sites Proposed Plan for 43 sites at McClellan Park is important to the EPA. Comments provided by the public help EPA select the final remedial alternative for sites undergoing privatized cleanup. All comments received by the deadline will be responded to in writing in the Responsiveness Summary section of the Record of Decision.

You may use the space below to write comments. Use additional pages, if needed. Comments must be received by February 7, 2014. Send comments to Bob Fitzgerald, Remedial Project Manager, 75 Hawthorne Street, SFD-8-1, San Francisco, CA 94105, fax to (415) 947-3520, or email to fitzgerald.bob@epa.gov.

If you would like to be on the mailing list to receive information about the environmental restoration activities at McClellan Park, please provide your name and address below.

Name _____

Address _____

City _____ State _____ Zip _____

☐ Yes, add me to the mailing list

Glossary/Acronyms

Action Sites – Sites which require a removal or remedial action to address contamination in soil to meet state and/or federal **ARARs**.

Administrative Record (AR) — Located at the former McClellan Air Force Base (McClellan Park) and online (http://afrpaar.lackland.af.mil/ar/docsearch.aspx), a collection of all pertinent documents that support the final decisions for each site.

Applicable or Relevant and Appropriate Requirements (ARARs) – State and federal environmental requirements determined to be legally applicable or relevant and appropriate to removal or remedial actions at a CERCLA site. The NCP requires compliance with all state or federal ARARs at a Superfund site unless they are waived.

Bioventing — A process that involves delivering oxygen to contaminated soils through the extraction and/or injection of air. The increased oxygen within the subsurface helps naturally occurring microorganisms within the soil to biodegrade the contamination (typically fuel-related contamination).

Cleanup Level — Residual concentrations of the contaminants of concern that, if achieved, would protect human health and the environment.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) — Legislation passed in 1980 and designed to respond to the past disposal of hazardous substances. The act was extensively amended in 1986 by the Superfund Amendments and Reauthorization Act, which added many provisions and clarified unclear areas in the original law.

Contaminant of concern — A contaminant present at a concentration that presents a risk to human health and/or the environment.

Exposure pathway — A way that people or ecological receptors can be exposed to contaminants. Common pathways include breathing, ingestion, or absorption through the skin.

Feasibility Study (FS) — A study of a hazardous waste site that must be completed before a cleanup remedy can be chosen and implemented. The Feasibility Study identifies and evaluates alternatives for addressing contamination.

Finding of Suitability for Early Transfer (FOSET) — A document that records that a parcel of real property at a former military installation is suitable for transfer by deed, but that remedial action to address environmental contamination may still be required.

Finding of Suitability for Early Transfer (FOSET) # 2 — FOSET # 2 includes the privatized cleanup of parcels primarily in the eastern part of McClellan Park.

Groundwater — Underground water that fills pores between particles of soil, sand, and gravel or openings in rocks to the point of saturation. Where groundwater occurs in significant quantity, it can be used as a source of drinking water. Groundwater use at McClellan Park has been restricted because of contamination, which is being addressed in accordance with the VOC Groundwater ROD.

Hazard index (HI) — The ratio of contaminant concentration divided by the safe exposure level. If the hazard index exceeds 1, people are exposed to contaminants that may pose noncancer health risks. Noncancer health risks are contaminant-dependent but may include kidney disease, headaches, dizziness, and anemia. For more information, go to ToxFAQs at www.atsdr.cdc.gov.

Information Repository – The location(s) where documents related to the site can be viewed.

Installation Restoration Program — A program designed to identify, investigate, and clean up contamination associated with past Air Force activities.

Institutional controls — Administrative or legal mechanisms that protects property users and the public from existing contamination that continues to be present during use of a site (permits, zoning, and/or deed restrictions).

National Oil and Hazardous Substances Pollution Contingency Plan (NCP) — The federal regulation that guides determination of the sites to be cleaned up under the Superfund program. This plan also provides the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances in accordance with CERCLA and the Clean Water Act.

National Priorities List — U.S. Environmental Protection Agency's published list of the highest priority hazardous waste sites in the U.S. for investigation and cleanup, which are subject to the Superfund program.

Non-cancer health risk — A health risk that does not result in cancer and may include kidney disease, headaches, dizziness, and anemia.

Non-volatile organic compounds (non-VOCs) — A group of compounds that do not readily evaporate at room temperature. These include metals, pesticides, semi-volatile organic compounds (SVOCs), petroleum hydrocarbons, dioxins/furans, and radionuclides.

Polychlorinated biphenyl (PCB) — One of a group of toxic, persistent chemicals formerly used in electrical transformers and capacitors for insulating purposes. PCBs are classified as a possible carcinogen.

Polycyclic aromatic hydrocarbon (PAH) — One of a group of more than 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco or charbroiled meat.

Preferred alternative — The suggested cleanup method(s) for the contaminated site(s). Under **Privatization**, the EPA selects the remedies, with agreement from the State. The preferred alternative is protective of human health and the environment, complies with applicable or relevant and appropriate requirements, and is cost-effective.

Privatization — The process where the Department of Defense provides cleanup funds to a new property owner with the goal of speeding up redevelopment. EPA, instead of the military, will decide how the contamination will be cleaned up.

Proposed Plan — A summary of cleanup alternatives for a contaminated site, including a preferred alternative and the reasons for its selection. This step is the community's opportunity to review and comment on all cleanup alternatives under consideration. The responses to the comments are presented in the Record of Decision. All changes from the Proposed Plan are explained in the Record of Decision.

Radionuclides – Chemical elements that emit energy as radiation that are present in the natural environment but can be changed for various purposes (such as being used to create paint that glows in the dark). Soil and groundwater can be contaminated if such chemicals are spilled on the ground or buried for disposal.

Record of Decision (ROD) — A document explaining and legally committing the lead agency to the cleanup alternative(s) that will be used at a site. The Record of Decision is based on information and technical analyses

generated during the Remedial Investigation and Feasibility Study, and consideration of public comments and community concerns.

Remedial Action Objectives (RAOs) – A statement containing a cleanup goal for the protection of one of more receptors from one or more chemicals in a specific medium (such as soil, groundwater, or air) at a site.

Remedial Investigation (RI) — A hazardous waste site study to examine the nature and extent of site contamination.

Responsiveness Summary — The section within the Record of Decision that summarizes comments received from the public during the public comment period and provides lead agency responses to them.

Restoration Advisory Board — A board, consisting primarily of members of the public, which is a forum for the exchange of information between community members, regulatory agencies, and Air Force personnel. Board members have the opportunity to review cleanup reports and provide advice to decision makers on investigation and cleanup matters.

Restricted land use — Land use that is limited to commercial, industrial, or recreational purposes. Sensitive land use such as residential is not allowed.

Risk assessment — A study based on the results of the Remedial Investigation to determine the extent to which chemical contaminants found at a Superfund site pose a risk to public health and the environment.

Semi-volatile organic compounds (SVOCs) — A group of chemical compounds that evaporate in air at a slower rate than volatile organic compounds (VOCs). SVOC is a name for a class of compounds and includes PAHs, PCBs, pesticides, and dioxins/furans.

Shallow soil gas — Soil gas in the upper 15 feet of soil.

Soil gas — Air between soil particles that may contain vaporized contaminants from the soil.

Soil vapor extraction (SVE) — A process that applies a vacuum to subsurface soil (via extraction wells) to extract contaminated vapors from the soil and flush fresh air through the contaminated soil. As necessary, the extracted vapors are treated to reduce emissions to acceptable levels.

State land use covenant — Imposes appropriate limitations on land use and shall be executed and recorded when hazardous materials, hazardous wastes or constituents, or hazardous substances will remain at the property at levels which are not suitable for unrestricted use of the land. DTSC is responsible for the recording and enforcement of state land use covenants with assistance from EPA and the Central Valley Water Board.

Total petroleum hydrocarbons — A wide range of liquid hydrocarbons, including gasoline and diesel fuel.

Unrestricted land use — Risk is reduced to such a low level as to allow anything to be built, including homes and schools.

Vapor inhalation pathway — Vapor intrusion is the migration of volatile chemicals from the subsurface into overlying buildings. The vapor inhalation pathway is used in risk analysis to evaluate the impact of vapor intrusion on building occupants. Basically, the vapor inhalation pathway includes contaminants in the soil that volatilize into soil gas, migrate into buildings, and are inhaled by the occupants.

Volatile organic compound (VOC) — An organic compound containing carbon that evaporates (volatilizes) readily at room temperature. VOCs are used in the manufacturing of paints, pharmaceuticals, and refrigerants. VOCs

typically are industrial solvents, such as trichloroethylene. Some VOCs are known carcinogens. For more information, go to ToxFAQs at http://www.atsdr.cdc.gov/toxfaqs/index.asp.

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Table 2 – Rationale for FOSET #2 Action Sites Proposed Plan, McClellan Park, Sacramento, California

Site(s)	Site Description	Preferred Remedial Alternative	Rationale for Preferred Remedial Alternative
AOC G-3	This approximately 7.8-acre site consists of a portion of a paved aircraft parking apron known as Mat V, a portion of Building 1106 (aircraft maintenance hangar), and surrounding unpaved areas. Activities associated with this site included aircraft washing, maintenance, and parking. Leaks, spills, and disposal of wastes to the ground surface as a result of aircraft maintenance and parking activities may have impacted the site soil. The contaminants of concern (COCs) include volatile organic compounds (VOCs) and **polycyclic aromatic hydrocarbons** (PAHs).	VOC2 Non-VOC4a	Data indicate that SSG risks are greater than the risk management range for unrestricted use and at the high end of the risk management range for restricted use. The contaminants of concern (COCs) identified in SSG are benzene, methylene chloride, naphthalene, and tetrachloroethylene (PCE). Soil risks, primarily associated with the PAHs, are greater than the risk management range for unrestricted use, and within the risk management range for restricted use. Based on sampling results, and to protect surface water, additional sampling is needed to confirm that there is no contamination that would be exposed if the pavement is removed or engineering controls are needed to maintain the MAT V pavement. The COCs identified in soil are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene. The target excavation volume is 7,950 cubic yards.
AOC G-4	This approximately 9.5-acre site consists of a portion of a paved aircraft parking apron known as Mat V and Buildings 1100 (aircraft support and wood shop), 1102 (aircraft maintenance), 1103 (drum storage area), 1105 (hazardous materials storage area), 1106 (open waste storage area), and 1107 (aircraft storage supply area and metals shop). Releases from the hazardous waste disposal, hazardous materials storage, and aircraft shop and maintenance activities may have impacted the surface and subsurface soil. COCs include VOCs and PAHs.	VOC3 Non-VOC4a	Data indicate that SSG risks are greater than the risk management range of unrestricted use, and at the low end of the risk management range for restricted use. The COCs identified in SSG are 1,4-dichlorobenzene (DCB), benzene, chloroform, methylene chloride, naphthalene, and PCE. Soil risks, primarily associated with the PAHs, are greater than the risk management range for unrestricted use, and at the high end of the risk management range for restricted use. The COCs identified in soil are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-c,d)pyrene, and naphthalene. The target excavation volume is 2,190 cubic yards.
AOC G-5	This site consists of a portion of a paved aircraft parking apron known as Mat U, Building 1071 (aircraft maintenance shop), and a cemented and bermed hazardous waste storage area. Leaks, spills, and disposal of wastes may have impacted the ground surface as a result of aircraft maintenance. Leaks from the drains, sumps, and IWL may have impacted the subsurface soil. COCs include VOCs, PAHs, and lead. In addition, PCBs have been detected at AOC G-5, possibly as a result of PCB-laden oil sprayed for weed control or dust suppression.	VOC2 Non-VOC4a	Data indicate that SSG risks are at the high end of the risk management range for unrestricted use, and at the low end of the risk management range for restricted use. The COCs identified in SSG are benzene, chloroform, naphthalene, PCE, and trichloroethylene (TCE). Soil risks, primarily associated with the PAHs, are greater than the risk management range for unrestricted and restricted use. Sampling at the site and a recent site visit confirm that engineered controls will be needed to protect surface water quality. Due to several sample locations that exceeded surface water quality requirements, the existing surface cover(s) must be maintained and/or sediment traps and monitoring must be implemented. The COCs identified in soil are PCBs (Aroclor-1260), lead, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene. The target excavation volume is 5,480 cubic yards.
CS 038	This site consists of Building 475, which was a repair shop for large aircraft reciprocating engines. Several other industrial activities took place within Building 475, including electric motor repair, jet engine repair, welding, metalwork, laser etching, sand-blasting, solvent spray, and storage. An approximately 2,250-gallon solvent underground storage tank (UST) was also discovered at CS 038, and was removed on 03 November 2009. Spills of solvents may have impacted the surface soil, and leaks from USTs, piping, other tanks, the IWL, and possible burial pits may have impacted the subsurface soil. COCs include VOCs and TPH.	VOC3 Non-VOC4a	Data indicate that SSG risks are greater than the risk management range for both unrestricted and restricted use. The COCs identified in SSG are benzene, carbon tetrachloride, chloroform, 1,4-DCB, ethylbenzene, hexane, naphthalene, PCE, TCE, 1,3,5-trimethylbenzene (TMB), 1,2,4-TMB, and vinyl chloride. Arsenic was the main driver of soil risk, but with one exception, soil concentrations were within the range of natural background variation. Soil risks (excluding arsenic) are below the risk management range for unrestricted use. Including arsenic, soil risks are at the high end of the risk management range of unrestricted use, and within the risk management range for restricted use. One TPH as gasoline (TPH-G) detection exceeded the CL for groundwater protection; therefore, TPH-G is the only COC in soil. The excavation target volume is 230 cubic yards.
CS 040	This site consists of eight sludge drying beds that were 190 feet long, 110 feet wide, and 1 foot deep. Releases from sludge stored at CS 040 may have impacted the subsurface soil, and overflows during rain events may have impacted the surface soil. COCs include VOCs, PCBs, radionuclides, pesticides, PAHs, and lead.	VOC2 Non-VOC4a Non-VOC4b (radionuclides)	Data indicate that SSG risks are greater than the risk management range for unrestricted use, and within the risk management range for restricted use. The COCs identified in SSG are 1,1-dicholorethane (DCA), benzene, chloroform, cis-1,2-dichloroethene (DCE), naphthalene, PCE, TCE, and vinyl chloride. Soil risks, primarily associated with PCBs, pesticides, and PAHs, are greater than the risk management range for unrestricted use, and at the high end of the risk management range for restricted use. The COCs identified in soil are PCBs (Aroclor-1260), dieldrin, lead, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene. The combined excavation target volume for adjacent sites CS 040, PRL S-006, and PRL S-019 is 23,160 cubic yards.
CS B-005	This site was an undeveloped area whose surface soil may have been impacted by petroleum residues in surface runoff from adjacent parking lots. Buried debris from an undetermined source has also been encountered at CS B-005, which may have impacted the subsurface soil. COCs include VOCs, metals, PAHs, dioxins/furans, and radionuclides.	VOC2 Non-VOC4a Non-VOC4b (radionuclides)	Data indicate that SSG risks are within the risk management range for unrestricted use, and below the risk management range for restricted use. The COC identified in SSG is benzene. Soil risks, driven by metals and dioxins/furans, exceed the risk management range for both unrestricted and restricted use. The COCs identified in soil are antimony, arsenic, benzo(a)pyrene, cadmium, cobalt, copper, lead, manganese, zinc, and dioxins/furans.

Site(s)	Site Description	Preferred Remedial Alternative	Rationale for Preferred Remedial Alternative
			The excavation target volume is 1,540 cubic yards.
CS S-007	This site is the former location of water cooling ponds, used to cool water from the reciprocating engine test buildings, and industrial wastewater treatment plant (IWTP) #3. A free oil separator, oil sump, clarifying tank, air saturation tank, flotation tank, 60,000-gallon holding tank, bleed-off tank, two backup holding tanks, raw waste holding tank, two sand filters, cooling pond, and underground holding tank were associated with IWTP #3. Releases from the cooling pond, site tanks, and associated underground piping may have impacted the surface and subsurface soil. COCs include VOCs, PAHs, TPH, and lead.	VOC3 Non-VOC4a	Data indicate that SSG risks are greater than the risk management range for unrestricted use, and within the risk management range for restricted use. The COCs identified in SSG are benzene, ethylbenzene, naphthalene, PCE, and TCE. Soil risks, driven by a single elevated naphthalene detection, exceed the risk management range for both unrestricted and restricted use. Excluding naphthalene, soil risks would be within the risk management range for both unrestricted and restricted use. Lead also exceeds the CL for surface water quality protection and will require engineering controls where excavation is not planned. Sampling at the site and a recent site visit confirm that engineered controls will be needed to protect surface water quality. Due to several sample locations that exceeded surface water quality requirements, the existing surface cover(s) must be maintained and/or sediment traps and monitoring must be implemented. The COCs identified in soil are benzo(a)pyrene, benzo(a)anthracene, dibenzo(a,h)anthracene, indeno(1,2,3-c,d)pyrene, naphthalene, 1,2-DCB, 1,3-DCB, 1,4-DCB, and lead. The excavation target volume is 420 cubic yards.
CS S-024	This approximately 2.1-acre site consists of a concrete pad used for aircraft cleaning, two sumps that collected runoff from the aircraft washing operations, an unlined drainage ditch, Building 375 (which included aircraft washing, paint stripping, and fuel tank desealing), three paint remover aboveground storage tanks (ASTs) and one solvent AST, Building 377 (support building), and Building 378 (chemical storage area). Spills and releases from hazardous materials storage areas, solvent storage tanks, process work areas, media bulking locations, and transformers may have impacted the surface soil. Leaks from sumps, drains, and IWL and stormwater lines may have impacted the subsurface soil. COCs associated with this site include VOCs, TPH, and PCBs.	VOC2 Non-VOC4a	Data indicate that SSG risks are within the risk management range for both unrestricted and restricted use. The COCs identified in SSG are TCE, ethylbenzene, PCE, and benzene. Soil risks, driven by PCBs, are greater than the risk management range for unrestricted use, and within the risk management range for restricted use. TPH-G exceeded the CL for groundwater and surface water quality protection. The COCs identified in soil are PCBs (Aroclor-1260) and TPH-G. The excavation target volume is 140 cubic yards.
CS S-026	This site consists of consists of Building 473 and the surrounding area. Building 473 was used for aircraft engine testing, and included a hazardous waste tank. Materials handled at CS S-026 included fuels, oils, VOCs, paints, heavy metals, aliphatic naphtha, toluene, and lead. Releases from fuel handling and jet engine testing, spray booth operations, and other operations at Building 473 may have impacted the surface. Leaks from the IWL and associated drains and piping may have impacted the subsurface. COCs include VOCs and TPH.	VOC3 Non-VOC4a	Data indicate that SSG risks are greater than the risk management range for both unrestricted and restricted use. The COCs identified in SSG are hexachlorobutadiene, 1,2,4-TMB, 1,3,5-TMB, carbon tetrachloride, and PCE. Arsenic was a significant contributor to the soil risk; however, arsenic concentrations were within the range of natural background variation. Soil risks (excluding arsenic), are below the risk management range for unrestricted and restricted use. TPH-D and TPH-G exceeded CLs for groundwater quality protection. The COCs identified in soil are TPH-D and TPH-G. The excavation target volume is 120 cubic yards.
CS T-012	This site is an approximately 5,000-square-foot area that was reportedly the location of a former oil-solvent UST, reportedly associated with Building 342. A geophysical anomaly identified in 1989 on the southern edge of Building 342 may be the tank related to CS T-012; however, this has not been confirmed. Leaks from the UST may have impacted the subsurface soil. COCs include PAHs and TPH.	Non-VOC4a	No VOCs were detected in the SSG samples collected at CS T-012; therefore, no COCs were identified in SSG, and the SSG risk is below the risk management range for unrestricted use. Thallium was elevated in one of 15 samples, but was detected by an unreliable analytical method, and is not considered a COC at CS T-012. Soil risks (excluding thallium), driven by PAHs, are at the low end of the risk management range for unrestricted use and less than the risk management range for restricted use. TPH-D and TPH-G exceeded CLs for groundwater quality protection. The COCs identified in soil are benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, TPH-D, and TPH-G. The combined excavation target volume for adjoining sites CS T-012 and CS T-021 is 870 cubic yards.
CS T-016	This site is the former location of Tank Farm 2. This tank farm consisted of four 25,000-gallon USTs; one 12,000-gallon UST; and two ASTs. The 25,000-gallon tanks contained diesel or JP-4 jet fuel, and the 12,000-gallon tank contained waste fuel. Little information is available for the ASTs, but an assessment conducted in 1991 indicated they were labeled as containing jet fuel. Leaks from the ASTs and spills during fuel delivery may have impacted the surface soil. Leaks from the USTs and potentially contaminated soil used to backfill the UST excavations may have impacted the subsurface. COCs include VOCs and TPH.	VOC2 Non-VOC4a	Data indicate that SSG risks are within the risk management range for unrestricted use and at the low end of the risk management range for restricted use. The COCs identified in SSG are chloroform, naphthalene, ethylbenzene, and benzene. Arsenic was a significant contributor to the soil risk; however, arsenic was analyzed with an unreliable method. Arsenic soil concentrations are most likely representative of natural variations in background and are not considered site contamination. Soil risks (excluding arsenic), are below the risk management range for unrestricted and restricted use. TPH-D and TPH-G exceeded CLs for groundwater quality protection. The lack of surface sampling at the site and a recent site visit confirmed that engineered controls will be needed to protect surface water quality. The existing surface cover(s) must be maintained and/or sediment traps and monitoring must be implemented. Alternatively, sufficient surface samples must be collected to demonstrate that there is no risk to surface water. The COCs identified in soil are TPH-D and TPH-G. Data suggest that natural TPH biodegradation is still occurring at CS T-016. The excavation target volume is 210 cubic yards.
CS T-017	This site encompasses the western portion of former Tank Farm 3, roughly 13,000 square feet in area. CS T-017 contained nine 25,000-gallon USTs. Six	Non-VOC4a	Data indicate that SSG risks are within the risk management range for unrestricted use, and below the risk management range for restricted use. No COCs were identified in SSG because concentrations were relatively low,

Site(s)	Site Description	Preferred Remedial Alternative	Rationale for Preferred Remedial Alternative
	of the USTs were used to store No. 2 diesel fuel, and three were used to store aviation fuel and gear oil. The USTs have been removed, but have not been granted closure status. Leaks from the USTs and associated piping may have impacted the subsurface soil. Spills during unloading operations and from drum storage activities may have impacted the surface soil. COCs include TPH and PAHs.		soil gas samples were collected from biased locations where contamination would likely have been identified, and a small number of VOCs exceeded screening levels. Arsenic was a significant contributor to the soil risk; however, arsenic concentrations were within the range of natural background variation. Soil risks (excluding arsenic) are within the risk management range for unrestricted use and less than the risk management range for restricted use. TPH-G exceeded the CL for groundwater quality protection. Based on sampling results, and to protect surface water in the vicinity of CS T-017, additional sampling is needed to confirm that surface and near-surface PAHs are excavated or engineering controls are needed to maintain the surface cover. The COCs identified in soil are TPH-G, benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, and chrysene. The excavation target volume is 170 cubic yards.
CS T-020	This site covers approximately 10,000 square feet and includes the former location of Tank Farm No. 6 and the foundation of demolished Building 418 (a former pump house). Tank Farm No. 6 was composed of seven USTs that were installed between 1951 and 1955. The USTs stored liquid fuels and wastes, and ranged in capacity from 11,000 gallons to 27,000 gallons. The USTs contained a combination of solvents, waste solvents, gasoline, kerosene, alcohol, and diesel. All seven tanks were removed in 1990 along with impacted soil from UST and piping leaks, but the USTs have not been granted closure status. COCs include VOCs and TPH.	VOC3 Non-VOC4b	Data indicate that SSG risks are at the low end of the risk management range for unrestricted use, and below the risk management range for restricted use. The COC identified in SSG is benzene. Thallium was elevated in three samples, but was detected by an unreliable analytical method, and is not considered a COC at CS T-020. Soil risks (excluding thallium) are below the risk management range for unrestricted and restricted use. TPH-D and TPH-G exceeded CLs for groundwater quality protection. TPH-D also exceeded the CL for surface water quality protection. Based on sampling results, and to protect surface water, engineering controls are needed to address TPH at the surface in the vicinity of sample CST20SB007 or the excavation must be extended to address this location. The COCs identified in soil are TPH-D and TPH-G. The excavation target volume is 1,220 cubic yards.
CS T-021	This site is the location of former Tank Farm 3-East, which contained five 12,500-gallon USTs, containing oils and fuels, Stoddard solvent, and alcohol. The tanks were removed in 1989, but have not been granted closure. Leaks from the UST may have impacted the subsurface soil. Releases during filling and emptying activities at the tank farm may have impacted the surface soil. COCs include PAHs and TPH.	Non-VOC4a	No VOCs were detected in the SSG samples collected at CS T-021; therefore, no COCs were identified in SSG, and the SSG risk is below the risk management range for unrestricted use. Thallium was elevated in one of 15 samples, but was detected by an unreliable analytical method, and is not considered a COC at CS T-021. Soil risks (excluding thallium), driven by PAHs, are at the low end of the risk management range for unrestricted use and less than the risk management range for restricted use. TPH-D and TPH-G exceeded CLs for groundwater quality protection. The COCs identified in soil are benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, TPH-D, and TPH-G. The combined excavation target volume for adjoining sites CS T-012 and CS T-021 is 870 cubic yards.
CS T-030	This site consists of a group of six solvent USTs, ranging from 250 to 1,500 gallons, located immediately south of Building 252. Two of the USTs have been removed and the other four were filled with concrete and abandoned in place. Leaks from the USTs may have impacted the subsurface soil. COCs include radionuclides and mercury.	Non-VOC4b	Data indicate that SSG risks are below the risk management range for unrestricted and restricted use. No COCs have been identified in SSG. Soil risks, driven by mercury, are greater than the risk management range for both unrestricted and restricted use. The COCs identified in soil are radionuclides and mercury. The combined excavation target volume for adjacent sites CS T-030 and PRL S-018 is 3,000 cubic yards.
CS T-036	This site consists of the location of former UST 344, a 500-gallon steel UST used to store Stoddard solvent adjacent to the northwest corner of Building 344. The tank was removed in 1989. The excavation was filled with clean soil and paved over. Soil samples concluded that the soil within the excavation was not contaminated, and UST 344 was granted closure status by the Central Valley Water Board. COCs include pesticides.	Non-VOC4a	Data indicate that SSG risks are below the risk management range for unrestricted and restricted use. No COCs have been identified in SSG. Soil risks, driven by pesticides, are at the upper end of the risk management range for unrestricted use and within the risk management range for restricted use. The COC identified in soil is dieldrin. The excavation target volume is 110 cubic yards.
CS T-047	This site is the location of a former underground oil-water separator (OWS) and an associated 10,000-gallon AST. Releases resulting from leaks in the OWS and associated piping may have impacted the subsurface soil. Releases resulting from leaks in the AST or when waste oil was removed from it may have impacted the surface soil. COCs include VOCs, PAHs, and TPH.	VOC2 Non-VOC4a	Data indicate that SSG risks are greater than the risk management range for unrestricted use but within the risk management range for restricted use. The COCs identified in SSG are benzene, 1,1-DCA, chloroform, cis-1,2-DCE, vinyl chloride, TCE, and PCE. Soil risks, driven by naphthalene and 2-methylnaphthalene in a single sample, are greater than the risk management range for unrestricted use and at the low end of the risk management range for restricted use. TPH-D and TPH-G exceeded CLs for groundwater quality protection. The lack of surface sampling at the site and a recent site visit confirmed that engineered controls may be needed to protect surface water quality. Sufficient surface samples must be collected to demonstrate that there is no risk to surface water or the site must be paved. The COCs identified in soil are naphthalene, 2-methylnaphthalene, TPH-D, and TPH-G. The excavation target volume is 1,290 cubic yards.
CS T-057	This site is an 82,000-square foot area used for storage of unknown materials and fire training. Building 431, a former jet engine testing facility, was also located at this site. A 1,000-gallon wastewater UST was located about 40 feet north of the northern corner of Building 431. The UST was removed in 1988, but was not granted closure status. Two 3,000-gallon	VOC3 Non-VOC4a	Data indicate that SSG risks are greater than the risk management range for unrestricted use and at the high end of the risk management range for restricted use. The COCs identified in SSG are 1,2,4-TMB; 1,3,5-TMB; 1,2-DCA; benzene; chloroform; cis-1,2-DCE; ethylbenzene; naphthalene; PCE; TCE; and vinyl chloride. Soil risks, driven by arsenic and dioxins/furans, are greater than the risk management range for unrestricted use and

Site(s)	Site Description	Preferred Remedial Alternative	Rationale for Preferred Remedial Alternative
	ASTs and a 1,000-gallon AST were formerly located on the northwestern side of Building 431. Leaks from the UST and IWL may have impacted the subsurface soil. Leaks from the ASTs and discharges during fire training and jet engine testing activities may have impacted the surface soil. COCs include VOCs, dioxins/furans, and lead.		within the risk management range for restricted use. Lead was detected at concentrations above the unrestricted screening level, but below the restricted screening level. Dioxins/furans and lead also exceeded the CL for surface water quality protection. Based on sampling results, and to protect surface water, engineering controls are needed in the vicinity of sample CST57B021. The COCs identified in soil are dioxins/furans and lead. The combined excavation target volume for adjacent sites CS T-057, SA 080, and SA 107 is 101 cubic yards.
PRL S-001	This site consists of Building 343, which covers approximately half of the site's 32,400 square feet. Building 343 was used for plating, battery storage and maintenance, sandblasting, buffing, and lacquer operations. Building 343 was also identified as a pretreatment facility, which included chromium and cadmium recovery and residual chromium reduction. Releases from leaks in the trenches beneath the plating tanks may have impacted the subsurface soil. COCs include VOCs and metals.	VOC2 Non-VOC4a	Data indicate that SSG risks are within the risk management range for unrestricted use, and at the low end of the risk management range for restricted use. The COCs identified in SSG are benzene, carbon tetrachloride, chloroform, ethylbenzene, naphthalene, PCE, and TCE. Arsenic was a significant contributor to the soil risk; however, arsenic concentrations were within the range of natural background variation. Soil risks (excluding arsenic) are greater than the risk management range for unrestricted use, and less than the risk management range for restricted use. Lead was detected at concentrations exceeding the restricted CL beneath Building 343. Lead also exceeded the CL for surface water quality protection and engineering controls will be required where excavation is not planned. Based on sampling results for metals, and to protect surface water, engineering controls to maintain the pavement at site PRL S-001 are needed. The COCs identified in soil are cadmium and lead. The excavation target volume is 80 cubic yards.
PRL S-002	This site is the former location of Building 447, which stored paint and oil. After 1970, the northern portion of the building received fuels used at the base and distributed them to other locations on base. A transformer was also identified near the northeastern corner of the building. Releases of contaminants stored at the site or transformer oil leaks may have impacted the surface soil. COCs include PCBs and PAHs.	Non-VOC4a	Data indicate that SSG risks are within the risk management range for unrestricted use and less than the risk management range for restricted use. No COCs have been identified in SSG. Soil risks, primarily driven by PCBs, are greater than the risk management range for unrestricted use and within the risk management range for restricted use. PCBs also exceeded the CL for surface water quality protection and will require engineering controls where excavation is not planned. Sampling at the site and a recent site visit confirm that engineered controls will be needed to protect surface water quality. Due to several sample locations that exceeded surface water quality requirements, the existing surface must be paved and/or sediment traps and monitoring must be implemented. The COCs identified in soil are PCBs (Aroclor-1260), benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene. The excavation target volume is 120 cubic yards.
PRL S-006	This site is the location of former IWTP #1, which received wastewater containing fuels, oils, solvents, chromic acid, and phenols from base operations until 1972. Releases from leaks in ASTs or USTs and associated piping may have impacted the surface and subsurface soil. COCs include VOCs, PCBs, radionuclides, pesticides, PAHs, and lead.	VOC2 Non-VOC4a Non-VOC4b (radionuclides)	Data indicate that SSG risks are greater than the risk management range for unrestricted use, and within the risk management range for restricted use. The COCs identified in SSG are 1,1- DCA, benzene, chloroform, cis-1,2-DCE, naphthalene, PCE, TCE, and vinyl chloride. Soil risks, primarily associated with PCBs, pesticides, and PAHs, are greater than the risk management range for unrestricted use, and at the high end of the risk management range for restricted use. The COCs identified in soil are PCBs (Aroclor-1260), dieldrin, lead, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene. The combined excavation target volume for adjacent sites CS 040, PRL S-006, and PRL S-019 is 23,160 cubic yards.
PRL S-017	This site consists of Building 251, which was used primarily for aircraft maintenance. Aircraft propellers, engines, wings, fuselages, landing gear, and electrical systems were repaired in Building 251. Oil, grease, hydraulic fluid, gasoline, jet fuel, and solvents were used during these maintenance activities. Two washracks, several USTs, ASTs, an OWS, and an oil sump were located near Building 251. Leakage from the gasoline USTs and diesel ASTs, releases from the oil sump, OWS, washracks, paint booth, operations in the machine shop, and aircraft maintenance may have impacted the site soil. COCs associated with this site include VOCs and TPH.	VOC2 Non-VOC4a	Data indicate that SSG risks are greater than the risk management range for unrestricted use, and at the low end of the risk management range for restricted use. The COCs identified in SSG are benzene, carbon tetrachloride, chloroform, naphthalene, and TCE. Arsenic was a significant contributor to the soil risk; however, arsenic concentrations were within the range of natural background variation. Soil risks (excluding arsenic) are less than the risk management range for both unrestricted and restricted use. TPH-D and TPH-G exceeded groundwater protection CLs, and are COCs in soil at PRL S-017. The excavation target volume is 530 cubic yards.
PRL S-018	This site consists of Buildings 252 (a former repair shop and radium dial painting facility, including a non-operational solvent waste line beneath the building) and 253 (a small storage outbuilding attached to the southeast portion of Building 252). Releases may have impacted the site soil. COCs include radionuclides and mercury.	Non-VOC4b	Data indicate that SSG risks are below the risk management range for unrestricted and restricted use. No COCs have been identified in SSG. Soil risks, driven by mercury, are greater than the risk management range for both unrestricted and restricted use. The COC identified in soil are radionuclides and mercury. The combined excavation target volume for adjacent sites CS T-030 and PRL S-018 is 3,000 cubic yards.
PRL S-019	This site includes Building 326, which was used from 1960 to 1979 by the Entomology Unit to mix and store various herbicides and pesticides, mostly in powder form. The basement of the building housed fire boxes which were used for an unspecified length of time to incinerate small quantities of solid wastes. One drain in the basement of Building 326 is connected to the	VOC2 Non-VOC4a	Data indicate that SSG risks are greater than the risk management range for unrestricted use but within the risk management range for restricted use. The COCs identified in SSG are 1,1-DCA; benzene; chloroform; cis-1,2-DCE; naphthalene; PCE; TCE; and vinyl chloride. Soil risks, primarily associated with PCBs, pesticides, and PAHs, are greater than the risk management range for unrestricted use, and at the high end of the risk management range for restricted use. The COCs identified in soil are

Site(s)	Site Description	Preferred Remedial Alternative	Rationale for Preferred Remedial Alternative
	IWL. Surface releases of pesticide and herbicide compounds in the area surrounding Building 332 and subsurface releases resulting from leaks in the drain or sump in the basement of Building 332 may potentially have occurred. COCs include VOCs, PCBs, radionuclides, pesticides, PAHs, and lead.	Non-VOC4b (radionuclides)	PCBs (Aroclor-1260), dieldrin, lead, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene. The combined excavation target volume for adjacent sites CS 040, PRL S-006, and PRL S-019 is 23,160 cubic yards.
PRL S-025	This site comprises approximately 0.7 acres and is the location of former Building 440, which housed a transformer shop, a ball-bearing shop, and a rubber repair shop. The ball bearings were cleaned using Stoddard solvent, TCE, and PCE. Transformer oil spills, releases from the sump located just outside the rubber repair shop, or releases from the solvent line and pit may have impacted the soil at PRL S-025. COCs include PCBs and TPH.	Non-VOC4a	Data indicate that SSG risks are at the low end of the risk management range for unrestricted use and less than the risk management range for restricted use. No COCs have been identified in SSG. Soil risks, driven by PCBs, are greater than the risk management range for unrestricted use but less than the risk management range for restricted use. TPH-D and TPH-G exceeded surface water and groundwater protection CLs. PCBs also exceeded the CL for surface water quality protection and will require engineering controls where excavation is not planned. Based on sampling results, and to protect surface water from low levels of PCBs in the northeast corner of PRL S-025, engineering controls consisting of surface cover or sediment monitoring are needed. The COCs identified in soil are PCBs (Aroclors-1254 and 1260), TPH-D, and TPH-G. The excavation target volume is 40 cubic yards.
PRL S-036	This site includes former Building 402 (chemical storage), former Building 410 (garbage truck repair facility), three 250gallon diesel and gasoline ASTs, and an oil and automotive fluid drum storage area. Spills from building operations, ASTs, and drums may have impacted the soil surface. COCs include PCBs.	Non-VOC4b	Data indicate that SSG risks are within the risk management range for unrestricted use and less than the risk management range for restricted use. No COCs have been identified in SSG. Aluminum and thallium were significant contributors to the soil risk; however, aluminum concentrations were within the range of natural background variation, and thallium was detected by an unreliable analytical method. Soil risks (excluding thallium and aluminum), driven by PCBs, are at the low end of the risk management range for unrestricted use and less than the risk management range for restricted use. However, PCBs exceed surface water protection CLs. The COC identified in soil is PCBs (Aroclor-1260). The excavation target volume is 90 cubic yards.
PRL S-043	This site is the location of a former aircraft washrack. Releases from aircraft washing and maintenance; emergency fuel dumps or chemical spills; and repaving and resealing of the apron may have impacted the surface soil. Releases from the IWL and drainage system may have impacted the subsurface. COCs for the site include VOCs, PAHs, and TPH.	VOC2 Non-VOC4b	Data indicate that SSG risks are within the risk management range for unrestricted and restricted use. The COC identified in SSG is PCE. Soil risks (excluding arsenic), driven by PAHs, are at the upper end of the risk management range for unrestricted use and are within the risk management range for restricted use. TPH-G exceeded groundwater protection CLs. The COCs identified in soil are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, indeno(1,2,3-c,d)pyrene, chrysene, and TPH-G. The excavation target volume is 190 cubic yards.
PRL S-044	This site consists of the southern portion of a paved aircraft parking apron known as MAT U and is approximately 750 feet wide by 1,300 feet long and 18 inches thick. Aircraft maintenance, fueling, washing, painting, and de-painting occurred onsite beginning in 1957. An aircraft wash area was located in the southeastern corner of the site. Four east-west-running petroleum pipelines ran beneath the site. Maintenance hangars line the east side of the site. Releases from aircraft-related maintenance, painting, or washing may have impacted the surface soil. Leaks from the pipelines or IWL may have impacted the subsurface. COCs include VOCs, PCBs, PAHs, and lead.	VOC2 Non-VOC4a	Data indicate that SSG risks are greater than the risk management range for unrestricted use, and within the risk management range for restricted use. The COCs identified in SSG are benzene, naphthalene, and TCE. Soil risks, driven by PAHs, are greater than the risk management range for unrestricted use and within the risk management range for restricted use. Lead was detected above the unrestricted but below the restricted use screening level. Based on sampling results, and to protect surface water, engineering controls such as a sediment trap are needed to address COCs in surface soil that will not be excavated. The COCs identified in soil are PCBs (Aroclor-1260), benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-c,d)pyrene, and lead. The excavation target volume is 9,020 cubic yards.
PRL S-045	This site consists of a paved apron (Apron 7310) and two aircraft hangars (Buildings 877 and 878) and is also known as MAT C. Routine aircraft maintenance was performed on the apron and in the hangars from 1964 to 1992. Waste oil and hydraulic fluid were collected in bowsers and transferred to 55-gallon drums stored in the hazardous waste staging area in the northeastern portion of the apron. Spills and leaks to the ground surface from a hazardous materials storage area, ASTs, transformers, and various aircraft maintenance activities may have impacted the surface soil. Leaks from the sump and OWS may have impacted the subsurface. COCs include VOCs, PAHs, and PCBs.	VOC2 Non-VOC4b	Data indicate that SSG risks are within the risk management range for unrestricted use and less than the risk management range for restricted use. The COCs identified in SSG are benzene, 1,2-DCA, chloroform, and naphthalene. Arsenic and vanadium were significant contributors to the soil risk; however, both were within the range of natural background variation and were not indicative of contamination. Soil risks (excluding arsenic and vanadium) are within the risk management range for unrestricted use and less than the risk management range for restricted use. PCBs and PAHs exceeded surface water protection CLs. Sampling at the site and a recent site visit confirm that engineered controls will be needed to protect surface water quality. Due to several sample locations that exceeded surface water quality requirements, the existing surface cover(s) must be maintained and/or sediment traps and monitoring must be implemented. The COCs identified in soil are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and PCBs (Aroclors-1254 and 1260). The excavation target volume is 660 cubic yards.
PRL T-032	This site is the location of Building 1023, which served as a hangar for light maintenance activities. Two 550-gallon USTs just south of Building 1023	VOC3	Data indicate that SSG risks are greater than the risk management range for unrestricted and restricted use. The COCs identified in SSG are 1,2,4-TMB, 1,3,5-TMB, benzene, ethylbenzene, m,p-Xylene, methylene chloride, and

Site(s)	Site Description	Preferred Remedial Alternative	Rationale for Preferred Remedial Alternative
	were removed in 1987, and received closure from the Central Valley Water Board on 06 March 1998. Releases from the former USTs and leaks from the floor drains and/or sanitary sewer related to the maintenance activities may have impacted the subsurface soil. COCs include VOCs, PAHs, and TPH.	Non-VOC4a	naphthalene. Arsenic was a significant contributor to the soil risk; however, the elevated arsenic concentrations are not indicative of contamination from Air Force activities, and arsenic is not considered a COC at PRL T-032. Soil risks (excluding arsenic) are within the risk range for unrestricted use and at the low end of the risk range for restricted use. TPH-G exceeded surface water and groundwater protection CLs. Sampling at the site and a recent site visit confirm that engineered controls may be needed to protect surface water quality. Pre-excavation sampling, including sub-slab sampling, is needed during the design phase. If not excavated, due to several sample locations that exceeded surface water quality requirements, the existing surface cover(s) must be maintained and/or sediment traps and monitoring must be implemented. The COCs identified in soil are 1-methylnaphthalene, benzo(a)pyrene, naphthalene, TPH-D, and TPH-G. The excavation target volume is 5,080 cubic yards.
SA 004	This site is the former location of Building 650 (aircraft parts storage, paint booths, and radar equipment installation) and two outdoor storage areas west of the building. A small paved hazardous waste staging area, immediately west of Building 650B, was used to store empty containers, soiled rags, and waste paper and chemicals from the paint shop. An unpaved storage area, located 350 feet west of Building 650D, was used to store electrical transformers. Leaks or spills from stored electrical transformers, the loading dock, and hazardous waste storage area west of Building 650B; and releases from paint booth activities at Buildings 650B and 650C may have impacted the surface soil. Leaks from the nearby IWL may have impacted the subsurface soil. COCs include VOCs and PCBs.	VOC2 Non-VOC4b	Data indicate that SSG risks are greater than the risk management range for unrestricted use and within the risk management range for restricted use. The COCs identified in SSG are naphthalene, 2-methylnaphthalene, and PCE. Soil risks, driven by PCBs, are greater than the risk management range for unrestricted and restricted use. The COC identified in soil is PCBs (Aroclor-1260). The excavation target volume is 30 cubic yards.
SA 045	This site consists of Building 339 (barracks, administrative offices, and the Western Field Office) and is the former location of a 500-gallon diesel UST. A transformer was also located northeast of Building 339. Leaks from the UST and associated piping may have impacted the subsurface, and leaks from the transformer may have impacted the surface soil. COCs include PAHs and TPH.	Non-VOC4a	Data indicate that SSG risks are within the risk management range for unrestricted use and less than the risk management range for restricted use. No COCs have been identified in SSG. Thallium was a significant contributor to the soil risk; however, thallium was detected by an unreliable analytical method, and is not considered a COC at SA 045. Soil risks (excluding thallium), driven by PAHs, are greater than the risk management range for unrestricted use and at low end of the risk management range for restricted use. TPH-D and TPH-G exceeded groundwater protection CLs. The COCs identified in soil are naphthalene, TPH-D, TPH-G, 1-methylnaphthalene, and 2-methylnaphthalene. The excavation target volume is 2,180 cubic yards.
SA 049	The site includes Buildings 262A (administrative work area) and 262B (power-generating plant) and the former and present locations of several USTs and ASTs (storing diesel, sodium hydroxide, and oil). Spills from the ASTs, drums of stored materials, batteries, and power-generation equipment may have impacted the surface soil. Releases from USTs and associated piping may have impacted the subsurface soil. COCs include PCBs and PAHs.	Non-VOC4a	No VOCs were detected in SSG at SA 049; therefore, no COCs have been identified in SSG. Arsenic and thallium were significant contributors to the soil risk; however, arsenic concentrations were within the range of natural background variation, and thallium was detected with an unreliable analytical method. Neither is considered a COC at SA 049. Soil risks (excluding arsenic and thallium), driven by PCBs and PAHs, are within the risk management range for unrestricted use and less than the risk management range for restricted use. PCBs also exceeded the CL for surface water quality protection and will require engineering controls where excavation is not planned south of Bldg. 262. Based on sampling results, and to protect surface water, engineering controls are needed to maintain the surface cover at SA 049. The COCs identified in soil are PCBs (Aroclor-1260), benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene. The excavation target volume is 20 cubic yards.
SA 055	This 0.92-acre site is the location of Building 324 and former Building 340. Buildings 324 and 340 were built in 1960 and were asphalt-paved, open-sided and bermed laboratory waste staging areas. Compounds stored at SA 055 include fuels, oils, solvents, cyanide, paints, acids, bases, oil containing PCBs, and metals. Spills from the storage of hazardous materials may have impacted the surface soil. COCs include PCBs and lead.	Non-VOC4b	Data indicate that SSG risks are within the risk management range for unrestricted use and are at the low end of the risk management range for restricted use. No COCs have been identified in SSG because only a small volume of soil has been impacted by VOCs. Thallium was a significant contributor to the soil risk; however, thallium was detected by an unreliable analytical method, and is not considered a COC at SA 055. Soil risks (excluding thallium) are less than the risk management range for unrestricted and restricted use. Lead was detected above the unrestricted CL, but below the restricted CL. Lead and PCBs (Aroclor-1260) were detected above the CL for surface water quality protection, and are considered COCs in soil. The excavation target volume is 30 cubic yards.
SA 060	This site is the former location of a vehicle washrack that consisted of a concrete slab area with an IWL drain in the center of the wash area. Releases from the former washrack and associated piping, from drum storage, and from overflow when the IWL drain clogged may have impacted the soil at SA 060. COCs include TPH.	Non-VOC4a	Data indicate that SSG risks are at the low end of the risk management range for unrestricted use and less than the risk management range for restricted use. No COCs have been identified in SSG. Cadmium and thallium were significant contributors to the soil risk; however, both metals were detected by an unreliable analytical method, and are not considered COCs at SA 0606. Soil risks (excluding cadmium and thallium) are less than the risk management range for both scenarios. TPH-D was detected above the surface water and

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			groundwater protection CLs, and is considered a COC in soil. The excavation target volume is 40 cubic yards.
SA 063	This site consists of former Building 350, which was used as administrative offices and a machine and light electrical maintenance shop. A transformer was identified east of the former building location. Releases from former machine shop and electrical maintenance operations or leaks from the transformer may have impacted the surface soil. COCs include PCBs.	Non-VOC4a	Data indicate that SSG risks are at the low end of the risk management range for unrestricted use and less than the risk management range for restricted use. No COCs have been identified in SSG. Soil risks, driven by PCBs (Aroclor-1260), are greater than the risk management range for unrestricted and restricted use. PCBs also exceeded the CL for surface water quality protection and will require engineering controls where excavation is not planned. Sampling at the site and a recent site visit confirm that engineered controls will be needed to protect surface water quality. Additional surface sampling is needed to determine if the site must be paved, due to several sample locations that exceeded surface water quality requirements. Alternatively, sediment traps and monitoring must be implemented. The COC identified in soil is Aroclor-1260. The excavation target volume is 400 cubic yards.
SA 066	This site is a former motor pool site that consisted of Building 357. Releases resulting from activities conducted during operation of the motor pool may have impacted the site soil. COCs include VOCs, and TPH.	VOC3 Non-VOC4a	Data indicate that SSG risks are greater than the risk management range for unrestricted and restricted use; however, SSG risks beneath Building 357 are within the risk management range for restricted use. The COCs identified in SSG are benzene, carbon tetrachloride, chloroform, 1,4-DCB, ethylbenzene, naphthalene, PCE, TCE, 1,2,4-TMB, and 1,3,5-TMB. Soil risks are less than the risk management range for unrestricted and restricted use. TPH-D exceeded CLs for groundwater quality protection and is considered a COC in soil. The excavation target volume is 30 cubic yards.
SA 080	This site consists of a grassy field where drummed chemicals were previously stored. In 1987, a contractor reported discharging hazardous rinse water and other wastes to the ground surface at SA 080. By 1987, all drums were removed from the site, and contaminated surface soil was removed and backfilled with clean soil. Leaks in fuel distribution line and associated supply lines and releases of chemicals from surface spills at hazardous materials storage area may have impacted the SA 080 soil. COCs include VOCs, dioxins/furans, and lead.	VOC3 Non-VOC4a	Data indicate that SSG risks are greater than the risk management range for unrestricted use and at the high end of the risk management range for restricted use. The COCs identified in SSG are 1,2,4-TMB; 1,3,5-TMB; 1,2-DCA; benzene; chloroform; cis-1,2-DCE; ethylbenzene; naphthalene; PCE; TCE; and vinyl chloride. Soil risks, driven by arsenic and dioxins/furans, are greater than the risk management range for unrestricted use and within the risk management range for restricted use. Lead was detected at concentrations above the unrestricted screening level, but below the restricted screening level. Dioxins/furans and lead also exceeded the CL for surface water quality protection. Based on sampling results, and to protect surface water, engineering controls are needed in the vicinity of sample CST57B021. The COCs identified in soil are dioxins/furans and lead. The combined excavation target volume for adjacent sites CS T-057, SA 080, and SA 107 is 101 cubic yards.
SA 096	This site is the former location of Building T-410 (reclamation building) and a hazardous materials staging area for the motor pool. In 1968, the foundation of Building T-410 was covered by asphalt, after which the area was used as a solid hazardous waste staging area. Drums in this area were observed to contain antifreeze, motor oil, gear lube oil, and heavy duty grease. Two 500-gallon USTs or sumps were located adjacent to the southwestern boundary of SA 096. Spills from the hazardous waste storage may have impacted the surface soil, and leaks from the two 500-gallon USTs/sumps and the concrete IWL sump may have impacted the subsurface. COCs include TPH.	Non-VOC4a	Data indicate that SSG risks are at the low end of the risk management range for unrestricted use and less than the risk management range for restricted use. No COCs have been identified in SSG. Arsenic was a significant contributor to the soil risk; however, arsenic concentrations were within the range of natural background variation. Soil risks (excluding arsenic) are less than the risk management range for unrestricted and restricted use. TPH-D and TPH-G were detected above the groundwater quality protection CLs, and are considered COCs in soil. The excavation target volume is 290 cubic yards.
SA 097	This site consists of a bermed, concrete-covered hazardous waste staging area and the demolished Building 426 (a former steam-cleaning washrack). An OWS was also located beneath Building 426. Hazardous wastes handled at the SA 097 hazardous waste staging area include solvents, empty lubricant aerosol cans, paints, caustic paint sludge, spent paint cans, and contaminated rags. Releases from cracks in the floor of the bermed, concrete-covered hazardous material staging area may have impacted surface soil, and releases from the former washrack may have impacted the subsurface. COCs include VOCs, metals, PCBs, TPH, and 4-chloroaniline.	VOC3 Non-VOC4a	Data indicate that SSG risks for unrestricted use are greater than the risk management range and are at the upper end of the risk management range for restricted use. The COCs identified in SSG are cis-1,2-DCE, PCE, and TCE. Arsenic was a significant contributor to the soil risk; however, arsenic concentrations were within the range of natural background variation. Soil risks (excluding arsenic) are greater than the risk management range for unrestricted use and less than the risk management range for restricted use. Lead was detected above the unrestricted use screening levels but is less than the restricted use screening level. TPH-D was detected above the groundwater quality protection CLs. PCBs also exceeded the CL for surface water quality protection and will require engineering controls where excavation is not planned. The COCs identified in soil are cadmium, lead, PCBs (Aroclors-1254 and 1260), TPH-D, and 4-chloroaniline. The excavation target volume is 40 cubic yards.
SA 100	This site consists of Building 332 (paper shredder), a 500-gallon diesel UST, an incinerator, a diesel AST, and two ASTs with unknown contents. The UST was removed in 1992, but has not been granted closure status. Releases from the incinerator and ASTs may have impacted the surface soil, and releases from the UST and industrial waste sump may have impacted the subsurface. COCs include VOCs, dioxins/furans, and lead.	VOC2 Non-VOC4a	Data indicate that SSG risks are greater than the risk management range for unrestricted use and are within the risk management range for restricted use. The COCs identified in SSG are benzene, chloroform, and carbon tetrachloride. Soil risks, driven by dioxins/furans, are greater than the risk management range for unrestricted use and within the risk management range for restricted use. Lead and dioxins/furans exceeded surface water protection CLs, and are the COCs identified in soil at SA 100.

Site(s)	Site Description	Preferred Remedial Alternative	Rationale for Preferred Remedial Alternative
			The excavation target volume is 20 cubic yards.
SA 107	This site comprises 1.7 acres, and is the former location of two jet engine test stands. Operations at SA 107 routinely used fuels, oils, and solvents. Leaks and spills may have impacted the site soil. COCs include VOCs, dioxins/furans, and lead.	VOC3 Non-VOC4a	Data indicate that SSG risks are greater than the risk management range for unrestricted use and at the high end of the risk management range for restricted use. The COCs identified in SSG are 1,2,4-TMB; 1,3,5-TMB; 1,2-DCA; benzene; chloroform; cis-1,2-DCE; ethylbenzene; naphthalene; PCE; TCE; and vinyl chloride. Soil risks, driven by arsenic and dioxins/furans, are greater than the risk management range for unrestricted use and within the risk management range for restricted use. Lead was detected at concentrations above the unrestricted screening level, but below the restricted screening level. Based on sampling results, and to protect surface water, engineering controls are needed in the vicinity of sample CST57B021. The COCs identified in soil are dioxins/furans and lead. The combined excavation target volume for adjacent sites CS T-057, SA 080, and SA 107 is 101 cubic yards.
SA 109 (F2)	This site consists of a portion of Magpie Creek. Runoff, storm drainage, discharges from nearby contaminated sites, and leaks in the corrugated liner within the creek may have impacted the surface soil. COCs include metals, pesticides, PCBs, and radionuclides.	Non-VOC4b	COCs were not identified in SSG at SA 109 (F2) because this site is not considered a source of VOCs in soil gas. Arsenic was a significant contributor to the soil risk; however, arsenic concentrations were within the range of natural background variation. Soil risks (excluding arsenic), driven by cadmium and PCBs, are greater than the risk management range for unrestricted use and at the low end of the risk management range for restricted use. Lead was also detected above unrestricted, but below restricted use screening levels. Cadmium and PCBs also exceeded the CL for surface water quality protection. The COCs identified in soil are cadmium, alpha chlordane, gamma chlordane, dichlorodiphenyldichloroethane (DDD), dichlorodiphenyldichloroethylene (DDE), and dichlorodiphenyltrichloroethane (DDT), dieldrin, lead, and PCBs (Aroclors-1254 and 1260). The excavation target volume is 6,050 cubic yards.

Notes: (F2) Indicates portion of the IRP site within FOSET # 2.
Green Shading Sites included in Follow-on Strategic sites
Blue Shading Sites included in the Small Volume sites
Yellow Shading Sites included in the Building 252 sites.

Table 3 – Comparative Analysis Summary for Sites Evaluated in Feasibility Studies[a]

Site	Protection of Human Health and the Environment	Compliance with ARARs	Long-term Effectivess and Performance	Reduction in Toxicity, Mobility, and Volume	Short-term Effectiveness	Implementability	Cost (PV_{30}) (see footnote below table)
AOC G-3	VOC3 would be the most protective for future use if a new building is constructed; however, both VOC2 and VOC3 would prohibit unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective because contaminants would be physically removed. Non-VOC2 would protect human health by prohibiting unrestricted use and would minimize or eliminate impacts to surface water using surface cover. No Further Action would not be protective considering risks are greater than the risk management range for unrestricted use.	All evaluated alternatives would comply with ARARs.	Risks are greater than the risk management range for unrestricted use and within the risk management range for restricted use. Risks under VOC3 would be acceptable. Risks under VOC2 may be acceptable. Risks under No Further Action would not be acceptable. The long-term effectiveness and permanence of the institutional controls under VOC2 and VOC3 would be nearly equal; however, the long-term reliability and permanence of VOC3 would be increased relative to VOC2 with the addition of engineered controls, which would control migration of soil gas into indoor air. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a, levels acceptable for restricted use would be achieved. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water. The criterion for long-term effectiveness and permanence would not be met under No Further Action except to the extent that VOCs would attenuate naturally, which would provide some degree of long-term reduction in risk at the site.	Because engineered controls under VOC3 would limit or eliminate the vapor inhalation pathway, mobility of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2 and No Further Action. Reduction by natural processes only would occur under VOC2 and No Further Action. None of the evaluated alternatives meet the statutory preference for treatment. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action. None of the evaluated alternatives meet the statutory preference for treatment.	VOC2 and VOC3 would be effective immediately. Implementation of VOC2 would entail no significant adverse risks to the environment or health of the community and workers. Short-term risks during the implementation of engineered controls under VOC3 would be minimal because of limited disruption of shallow soils. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All of the evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $196,000 Non-VOC2 = $1,117,000 Non-VOC4a = $2,128,000 Non-VOC4b = $2,048,000
AOC G-4	VOC3 would be the most protective for SSG for future use if a new building is constructed or an existing building is renovated; however, both VOC2 and VOC3 would prohibit unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective for soil because contaminants would be physically removed. Non-VOC2 would protect human health by prohibiting unrestricted use and would minimize or eliminate impacts to surface water using surface cover. No Further Action would not be protective considering risks are greater than the risk management range for unrestricted use.	All evaluated alternatives would comply with ARARs.	Risks are greater than the risk management range for unrestricted use and within the risk management range for restricted use. Risks under VOC3 would be acceptable. Risks under VOC2 may be acceptable. Risks under No Further Action would not be acceptable. The long-term effectiveness and permanence of the institutional controls under VOC2 and VOC3 would be nearly equal; however, the long-term reliability and permanence of VOC3 would be increased relative to VOC2 with the addition of engineered controls, which would control migration of soil gas into indoor air. Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a, levels acceptable for restricted use would be achieved. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water. The criterion for long-term effectiveness and permanence would not be met under No Further Action except to the extent that VOCs would	Because engineered controls under VOC3 would limit or eliminate the vapor inhalation pathway, mobility of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2 and No Further Action. Reduction by natural processes only would occur under VOC2 and No Further Action. None of the evaluated alternatives meet the statutory preference for treatment. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action. None of the evaluated alternatives meet the statutory preference for treatment.	VOC2 and VOC3 would be effective immediately. Implementation of VOC2 would entail no significant adverse risks to the environment or health of the community and workers. Short-term risks during the implementation of engineered controls under VOC3 would be minimal because of limited disruption of shallow soils. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All of the evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $422,000 Non-VOC2 = $516,000 Non-VOC4a = $867,000 Non-VOC4b = $910,000

Site	Protection of Human Health and the Environment	Compliance with ARARs	Long-term Effectivess and Performance	Reduction in Toxicity, Mobility, and Volume	Short-term Effectiveness	Implementability	Cost (PV_{30}) (see footnote below table)
			attenuate naturally, which would provide some degree of long-term reduction in risk at the site.				
AOC G-5	VOC3 would be the most Protective for SSG for future use if a new building is constructed or an existing building is renovated; however, both VOC2 and VOC3 would prohibit unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective for soil because contaminants would be physically removed; however, sensitive species and habitat would be directly impacted and excavation may also indirectly impact other nearby wetlands. Non-VOC2 would protect human health by prohibiting unrestricted use and would minimize or eliminate impacts to surface water using surface cover. Although ICs alone under Non-VOC2 may not be protective of human health for restricted use, the surface cover would minimize or eliminate human exposure. The surface cover under Non-VOC2 would directly impact the sensitive species and habitat. Only Non-VOC4a and Non-VOC4b would be protective of ecological receptors. No Further Action may be protective considering risks are within the risk management range for unrestricted use.	Non-VOC2 may comply with ARARs. All other evaluated alternatives would comply with ARARs.	Risks are within the risk management range for unrestricted use and at the low end of the risk management range for restricted use. Risks under VOC3 would be acceptable. Risks under No Further Action and VOC2 may be acceptable. The long-term effectiveness and permanence of the institutional controls under VOC2 and VOC3 would be nearly equal; however, the long-term reliability and permanence of VOC3 would be increased relative to VOC2 with the addition of engineered controls, which would control migration of soil gas into indoor air. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a, levels acceptable for restricted use would be achieved. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water. The criterion for long-term effectiveness and permanence would not be met under No Further Action.	Because engineered controls under VOC3 would limit or eliminate the vapor inhalation pathway, mobility of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2 and No Further Action. Reduction by natural processes only would occur under VOC2 and No Further Action. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action. None of the evaluated alternatives meet the statutory preference for treatment.	VOC2 and VOC3 would be effective immediately. Implementation of VOC2 would entail no significant adverse risks to the environment or health of the community and workers. Short-term risks during the implementation of engineered controls under VOC3 would be minimal because of limited disruption of shallow soils. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All of the evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $246,000 Non-VOC2 = $818,000 Non-VOC4a = $1,642,000 Non-VOC4b = $2,600,000
CS 038	VOC4 would be the most protective for SSG because volume and concentrations of VOCs would be reduced. VOC3 would provide additional protection compared to VOC2. VOC2 would effectively prevent unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective for soil because TPH-G would be physically removed. Under Non-VOC2 and Non-VOC3, TPH-G would degrade over time with monitoring to verify that contamination does not impact groundwater. Non-VOC3 would be protective. Non-VOC2 would likely be protective because TPH-G contamination is limited. No Further Action would be protective of human health, but	All but No Further Action and VOC2 would comply with ARARs.	Risks under VOC3 and VOC4 would be acceptable. SSG risks for restricted use are greater than the risk management range. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. However, Non-VOC2, Non-VOC3, and Non-VOC4a would also be effective and permanent given that monitoring would be performed to verify that residual contamination does not impact groundwater. Current soil risks for restricted use (excluding arsenic) are less than the risk management range.	Mobility and volume would be significantly reduced under VOC4. Mobility and volume of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2. VOC4 and Non-VOC3 would meet the statutory preference for treatment. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	VOC2, VOC3, and VOC4 would be effective immediately. VOC3 would involve limited disruption of shallow soils. Under VOC3, the IC 37 SVE system will continue to operate for protection of groundwater which will effectively minimize vapor intrusion into the building. VOC4 could require installation of additional wells but short-term risks could be managed. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during bioventing (Non-VOC3) and excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Coordination with the SVE program would be required for the VOC alternatives. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b). The target excavation volume is adjacent to Building 475, which could complicate excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $391,000 VOC4 = $436,000 Non-VOC2 = $248,000 Non-VOC3 = $458,000 Non-VOC4a = $194,000 Non-VOC4b = $114,000

Site	Protection of Human Health and the Environment	Compliance with ARARs	Long-term Effectivess and Performance	Reduction in Toxicity, Mobility, and Volume	Short-term Effectiveness	Implementability	Cost (PV_{30}) (see footnote below table)
	potential impacts to groundwater would remain.						
CS 040/ PRL S-006/ PRL S-019	VOC3 would be the most protective for SSG but VOC2 would effectively prevent unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective for soil because contaminants (i.e., VOCs, PCBs, radionuclides, pesticides, PAH, and lead) would be physically removed. Non-VOC2 would effectively prevent unrestricted use and minimize or eliminate impacts to surface water.	VOC2 may comply with ARARs. All other evaluated alternatives except No Further Action would comply with ARARs.	Risks under VOC2 may be acceptable. Risks under VOC3 would be acceptable. SSG risks for restricted use are within the risk management range. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water. Current soil risks for restricted use are at the upper end of the risk management range.	Mobility and volume of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	VOC2 and VOC3 would be effective immediately. VOC3 would involve limited disruption of shallow soils. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $196,000 Non-VOC2 = $326,000 Non-VOC4a = $4,256,000 Non-VOC4b = $3,927,000
CS B-005	No Further Action may be protective considering risks are at the low end of the risk management range for unrestricted use. VOC2 would effectively prevent unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective for soil because contaminants would be physically removed. Non-VOC2 would effectively prevent unrestricted use but potential impacts to groundwater would remain.	VOC2 would comply with ARARs. Non-VOC4a and Non-VOC4b would comply with ARARs. Non-VOC2 may comply with ARARs. No Further Action would not comply with ARARs.	Risks under VOC2 would be acceptable. SSG risks for unrestricted use are at the low end of the risk management range and risks for restricted use are less than the risk management range. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls would provide continued protection of human health. Current soil risks are greater than the risk management range for restricted use.	VOC2 would not provide any additional reduction over No Further Action. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	VOC2 would be effective immediately. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 Non-VOC2 = $88,000 Non-VOC4a = $3,127,000 Non-VOC4b = $3,048,000
CS S-007	VOC3 would be the most protective for SSG, but VOC2 would effectively prevent unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective because contaminants would be physically removed. Non-VOC2 would effectively prevent unrestricted use and minimize or eliminate impacts to surface water. Under Non-VOC2, TPH-D would degrade over time with monitoring to verify that contamination does not impact groundwater.	VOC2 may comply with ARARs. All other evaluated alternatives except No Further Action would comply with ARARs.	Risks under VOC2 may be acceptable. Risks under VOC3 would be acceptable. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water, and monitoring would be performed to verify that residual contamination does not impact groundwater. Current risks for restricted use are within the risk management range.	Mobility and volume of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	VOC2 and VOC3 would be effective immediately. VOC3 would involve limited disruption of shallow soils. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Coordination with the SVE program would be required for the VOC alternatives. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $173,000 VOC4 = $203,000 Non-VOC2 = $300,000 Non-VOC4a = $277,000 Non-VOC4b = $185,000

Site	Protection of Human Health and the Environment	Compliance with ARARs	Long-term Effectivess and Performance	Reduction in Toxicity, Mobility, and Volume	Short-term Effectiveness	Implementability	Cost (PV_{30}) (see footnote below table)
CS S-024	VOC3 would be the most protective but VOC2 would effectively prevent unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective because contaminants would be physically removed. Non-VOC2 would effectively prevent unrestricted use and minimize or eliminate impacts to surface water. Under Non-VOC2, TPHG would degrade over time with monitoring to verify that contamination does not impact groundwater.	VOC2 may comply with ARARs. All other evaluated alternatives except No Further Action would comply with ARARs.	Risks under VOC2 may be acceptable. Risks under VOC3 would be acceptable. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water, and monitoring would be performed to verify that residual contamination does not impact groundwater. Current risks for restricted use are at the low end of the risk management range.	Mobility and volume of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	VOC2 and VOC3 would be effective immediately. VOC3 would involve limited disruption of shallow soils. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Coordination with the SVE program would be required for the VOC alternatives. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b). The target excavation volume is located near the corner of Building 375 which could complicate excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $555,000 Non-VOC2 = $268,000 Non-VOC4a = $205,000 Non-VOC4b = $138,000
CS S-026	VOC4 would be the most protective for SSG because volume and concentrations of VOCs would be reduced. VOC3 would provide additional protection compared to VOC2. VOC2 would effectively prevent unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective for soil because TPH would be physically removed. Under Non-VOC2 and Non-VOC3, TPH would degrade over time with monitoring to verify that contamination does not impact groundwater. Non-VOC3 would be protective. Non-VOC2 may be protective of groundwater. No Further Action would be protective of human health but potential impacts to water quality would remain.	All evaluated alternatives except VOC2 and No Further Action would comply with ARARs.	Risks under VOC3 and VOC4 would be acceptable. SSG risks for restricted use are greater than the risk management range. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. However, Non-VOC2, Non-VOC3, and Non-VOC4a would also be effective and permanent given that monitoring would be performed to verify that residual contamination does not impact groundwater. Current soil risks for restricted use (excluding arsenic) are less than the risk management range.	Mobility and volume would be significantly reduced under VOC4. Mobility and volume of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2. Only Non-VOC3 would meet the statutory preference for treatment for soil. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	VOC2, VOC3, and VOC4 would be effective immediately. VOC3 would involve limited disruption of shallow soils. VOC4 could require installation of additional wells but short-term risks could be managed. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during bioventing (Non-VOC3) and excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Coordination with the SVE program would be required for the VOC alternatives. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $196,000 VOC4 = $203,000 Non-VOC2 = $248,000 Non-VOC3 = $458,000 Non-VOC4a = $180,000 Non-VOC4b = $101,000
CS T-012/ CS T-021	Non-VOC4a and Non-VOC4b would be the most protective because contaminants would be physically removed. Under Non-VOC2 and Non-VOC3, contaminants would degrade over time with monitoring to verify that contamination does not impact groundwater. Non-VOC3 would be protective. Non-VOC2 would effectively prevent unrestricted use and may also be protective of groundwater. No Further Action may be protective of human health but potential impacts to water quality would remain.	All but No Further Action would comply with ARARs.	Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. However, Non-VOC2, Non-VOC3, and Non-VOC4a would also be effective and permanent given that institutional controls would provide continued protection of human health, and monitoring would be performed to verify that residual contamination does not impact groundwater. Current risks for restricted use are less than the risk management range.	Only Non-VOC3 would meet the statutory preference for treatment. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during bioventing (Non-VOC3) and excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	Non-VOC2 = $248,000 Non-VOC3 = $523,000 Non-VOC4a = $273,000 Non-VOC4b = $194,000

Site	Protection of Human Health and the Environment	Compliance with ARARs	Long-term Effectivess and Performance	Reduction in Toxicity, Mobility, and Volume	Short-term Effectiveness	Implementability	Cost (PV_{30}) (see footnote below table)
CS T-016	VOC4 would be the most protective for SSG because volume and concentrations of VOCs would be reduced. VOC3 would provide additional protection compared to VOC2. VOC2 would effectively prevent unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective for soil because TPH would be physically removed. Under Non-VOC2 and Non-VOC3, TPH would degrade over time with monitoring to verify that contamination does not impact groundwater. Non-VOC3 would be protective. Non-VOC2 may be protective considering that natural biodegradation is still occurring at the site. No Further Action may be protective of human health, but potential impacts to groundwater would remain.	All evaluated alternatives except VOC2 and No Further Action would comply with ARARs. VOC2 may comply with ARARs.	Risks under No Further Action may be acceptable. Risks under VOC2 may be acceptable. Risks under VOC3 and VOC4 would be acceptable. Risks for unrestricted use are within the risk management range. Risks for restricted use are at the low end of the risk management range. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. However, Non-VOC2, Non-VOC3, and Non-VOC4a would also be effective and permanent given that monitoring would be performed to verify that residual contamination does not impact groundwater.	Mobility and volume would be significantly reduced under VOC4. Mobility and volume of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2. Only Non-VOC3 would meet the statutory preference for treatment for soil. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	VOC2, VOC3, and VOC4 would be effective immediately. VOC3 would involve limited disruption of shallow soils. VOC4 could require installation of additional wells but short-term risks could be managed. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during bioventing (Non-VOC3) and excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Coordination with the SVE program would be required for the VOC alternatives. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $173,000 VOC4 = $203,000 Non-VOC2 = $248,000 Non-VOC3 = $458,000 Non-VOC4a = $192,000 Non-VOC4b = $112,000
CS T-017	Non-VOC4a and Non-VOC4b would be the most protective because contaminants would be physically removed. Under Non-VOC2 and Non-VOC3, contaminants would degrade over time with monitoring to verify that contamination does not impact groundwater. Non-VOC3 would be protective in the long-term, but short-term impacts to surface water may not be addressed. Non-VOC2 would effectively prevent unrestricted use and minimize or eliminate impacts to surface water. Non-VOC2 may also be protective of groundwater. No Further Action may be protective of human health, but potential impacts to groundwater would remain.	All but No Further Action would comply with ARARs.	Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water, and monitoring would be performed to verify that residual contamination does not impact groundwater. Non-VOC3 would also be effective and permanent given that monitoring would be performed to verify that residual contamination does not impact water quality. Current risks for restricted use (excluding arsenic) are less than the risk management range.	Only Non-VOC3 would meet the statutory preference for treatment. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during bioventing (Non-VOC3) and excavation (Non-VOC4a and Non-VOC4b) could be managed. Non-VOC3 would not be immediately protective of surface water.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	Non-VOC2 = $276,000 Non-VOC3 = $458,000 Non-VOC4a = $213,000 Non-VOC4b = $105,000

Site	Protection of Human Health and the Environment	Compliance with ARARs	Long-term Effectivess and Performance	Reduction in Toxicity, Mobility, and Volume	Short-term Effectiveness	Implementability	Cost (PV_{30}) (see footnote below table)
CS T-020	VOC4 would be the most protective for SSG because volume and concentrations of VOCs would be reduced. VOC3 would provide additional protection compared to VOC2. VOC2 would effectively prevent unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective because TPH would be physically removed. Under Non-VOC2 and Non-VOC3, TPH would degrade over time with monitoring to verify that contamination does not impact groundwater. Non-VOC3 would be protective. Non-VOC2 may be protective. No Further Action may be protective of human health, but potential impacts to groundwater would remain.	No Further Action and VOC2 may comply with ARARs. All other evaluated alternatives would comply with ARARs.	Risks under VOC3 and VOC4 would be acceptable. Risks under No Further Action and VOC2 may be acceptable. Risks are at the low end of the risk management range for unrestricted use and less than the risk management range for restricted use. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. However, Non-VOC2, Non-VOC3, and Non-VOC4a would also be effective and permanent given that monitoring would be performed to verify that residual contamination does not impact groundwater.	Mobility and volume would be significantly reduced under VOC4. Mobility and volume of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2. Only Non-VOC3 would meet the statutory preference for treatment in soil. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	VOC2, VOC3, and VOC4 would be effective immediately. VOC3 would involve limited disruption of shallow soils. VOC4 could require installation of additional SVE wells but short-term risks could be managed. Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during bioventing (Non-VOC3) and excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Coordination with the SVE program would be required for the VOC alternatives. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $173,000 VOC4 = $181,000 Non-VOC2 = $328,000 Non-VOC3 = $458,000 Non-VOC4a = $319,000 Non-VOC4b = $240,000
CS T-030/ PRL S-018	Non-VOC4a and Non-VOC4b would be the most protective because contaminants would be physically removed. Non-VOC2 would effectively prevent unrestricted use.	All but No Further Action would comply with ARARs.	Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls would provide continued protection of human health. Current risks for restricted use are within the risk management range.	Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	Non-VOC2 = $134,000 Non-VOC4a = $4,556,000 Non-VOC4b = $4,953,000
CS T-036	Non-VOC4a and Non-VOC4b would be the most protective because contaminants would be physically removed. Non-VOC2 would effectively prevent unrestricted use.	All but No Further Action would comply with ARARs.	Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls would provide continued protection of human health. Current risks for restricted use are within the risk management range.	Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	Non-VOC2 = $88,000 Non-VOC4a = $178,000 Non-VOC4b = $99,000

Site	Protection of Human Health and the Environment	Compliance with ARARs	Long-term Effectivess and Performance	Reduction in Toxicity, Mobility, and Volume	Short-term Effectiveness	Implementability	Cost (PV_{30}) (see footnote below table)
CS T-047	VOC3 would be the most protective for SSG, but VOC2 would effectively prevent unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective for soil because contaminants would be physically removed. Under Non-VOC2 and Non-VOC3, contaminants would degrade over time with monitoring to verify that contamination does not impact groundwater. Non-VOC3 would be protective. Non-VOC2 would effectively prevent unrestricted use and may also be protective of groundwater. No Further Action may be protective of human health, but potential impacts to water quality would remain.	All but VOC2 and No Further Action would comply with ARARs. VOC2 may comply with ARARs.	Risks under VOC2 may be acceptable. Risks under VOC3 would be acceptable. Risks for restricted use are within the risk management range. Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. However, Non-VOC2, Non-VOC3, and Non-VOC4a would also be effective and permanent given that institutional controls would provide continued protection of human health, and monitoring would be performed to verify that residual contamination does not impact groundwater.	Mobility and volume of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2. Only Non-VOC3 would meet the statutory preference for treatment. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	VOC2 and VOC3 would be effective immediately. VOC3 would involve limited disruption of shallow soils. Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during bioventing (Non-VOC3) and excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $196,000 Non-VOC2 = $328,000 Non-VOC3 = $458,000 Non-VOC4a = $328,000 Non-VOC4b = $249,000
CS T-057/ SA 080/ SA 107	VOC4 would be the most protective for SSG because volume and concentrations of VOCs would be reduced. VOC3 would provide additional protection compared to VOC2. VOC2 would effectively prevent unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective for soil because contaminants would be physically removed. Non-VOC2 would effectively prevent unrestricted use and minimize or eliminate impacts to surface water.	All evaluated alternatives except VOC2 and No Further Action would comply with ARARs. VOC2 may comply with ARARs.	Risks under VOC2 may be acceptable. Risks under VOC3 and VOC4 would be acceptable. Risks for restricted use are within the risk management range. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water.	Mobility and volume would be significantly reduced under VOC4. Mobility and volume of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	VOC2, VOC3, and VOC4 would be effective immediately. VOC3 would involve limited disruption of shallow soils. VOC4 could require installation of additional wells but short-term risks could be managed. Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Coordination with the SVE program would be required for the VOC alternatives. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $196,000 VOC4 = $250,000 Non-VOC2 = $186,000 Non-VOC4a = $278,000 Non-VOC4b = $113,000
PRL S-001	No Further Action may be protective considering risks are within the risk management range for unrestricted use. VOC3 would be the most protective but VOC2 would effectively prevent unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective for soil because contaminants would be physically removed. Non-VOC2 would effectively prevent unrestricted use and minimize or eliminate impacts to surface water.	No Further Action and VOC2 may comply with ARARs. All other evaluated alternatives would comply with ARARs.	Risks under No Further Action may be acceptable. Risks under VOC2 may be acceptable. Risks under VOC3 would be acceptable. Risks for both unrestricted and restricted use are within the risk management range. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water. Lead in one sample beneath Building 343 exceeds the restricted use CL.	Mobility and volume of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	VOC2 and VOC3 would be effective immediately. VOC3 would involve limited disruption of shallow soils. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Coordination with the SVE program would be required for the VOC alternatives. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b). The restricted use target excavation volume is located beneath Building 3343 which could complicate excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $305,000 Non-VOC2 = $115,000 Non-VOC4a = $204,000 Non-VOC4b = $141,000

Site	Protection of Human Health and the Environment	Compliance with ARARs	Long-term Effectivess and Performance	Reduction in Toxicity, Mobility, and Volume	Short-term Effectiveness	Implementability	Cost (PV_{30}) (see footnote below table)
PRL S-002	Non-VOC4a and Non-VOC4b would be the most protective because contaminants would be physically removed. Non-VOC2 would effectively prevent unrestricted use and minimize or eliminate impacts to surface water.	All evaluated alternatives except No Further Action would comply with ARARs.	Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water. Current risks for restricted use are within the risk management range.	Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	Non-VOC2 = $190,000 Non-VOC4a = $289,000 Non-VOC4b = $1,152,000
PRL S-017	VOC3 would be the most protective for SSG, but VOC2 would effectively prevent unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective for soil because TPH would be physically removed. Under Non-VOC2 and Non-VOC3, TPH would degrade over time with monitoring to verify that contamination does not impact groundwater. Non-VOC3 would be protective. Non-VOC2 may be protective of groundwater considering that the TPH contamination is relatively limited. No Further Action would be protective of human health, but potential impacts to water quality would remain.	All evaluated alternatives except VOC2 and No Further Action would comply with ARARs. VOC2 may comply with ARARs	Risks under VOC2 may be acceptable. Risks under VOC3 would be acceptable. Risks for restricted use are at the low end of the risk management range. Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. However, Non-VOC2, Non-VOC3, and Non-VOC4a would also be effective and permanent given that monitoring would be performed to verify that residual contamination does not impact groundwater.	Mobility and volume of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2. Only Non-VOC3 would meet the statutory preference for treatment. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	VOC2 and VOC3 would be effective immediately. VOC3 would involve limited disruption of shallow soils. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during bioventing (Non-VOC3) and excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Coordination with the SVE program would be required for the VOC alternatives. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $701,000 Non-VOC2 = $248,000 Non-VOC3 = $458,000 Non-VOC4a = $232,000 Non-VOC4b = $152,000
PRL S-025	Non-VOC4a and Non-VOC4b would be the most protective because contaminants would be physically removed. Non-VOC2 would effectively prevent unrestricted use and minimize or eliminate impacts to surface water. Under Non-VOC2, TPH would degrade over time with monitoring to verify that contamination does not impact groundwater.	All evaluated alternatives except No Further Action would comply with ARARs.	Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water, and monitoring would be performed to verify that residual contamination does not impact groundwater. Current risks for restricted use are less than the risk management range.	Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	Non-VOC2 = $282,000 Non-VOC4a = $205,000 Non-VOC4b = $146,000
PRL S-036	Non-VOC4b would be the most protective because contaminants would be physically removed. Non-VOC2 would effectively prevent unrestricted use and minimize or eliminate impacts to surface water.	All evaluated alternatives except No Further Action would comply with ARARs.	Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water. Current risks for restricted use are less than the risk management range.	Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4b).	Non-VOC2 = $108,000 Non-VOC4b = $107,000

Site	Protection of Human Health and the Environment	Compliance with ARARs	Long-term Effectivess and Performance	Reduction in Toxicity, Mobility, and Volume	Short-term Effectiveness	Implementability	Cost (PV_{30}) (see footnote below table)
PRL S-043	VOC3 would be the most protective for future use for SSG if a new building is constructed; however, both VOC2 and VOC3 would prohibit unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective for soil because contaminants would be physically removed. Under Non-VOC2 and Non-VOC3, TPH-G would degrade over time with monitoring to verify that contamination does not impact groundwater. Non-VOC3 would be protective. Non-VOC2 would be protective of human health and surface water and may be protective of groundwater. No Further Action would be protective of human health, but potential impacts to water quality would remain.	All evaluated alternatives would comply with ARARs.	Risks are within the risk management range for unrestricted use and at the low end of the risk management range for restricted use. Risks under VOC3 would be acceptable. Risks under No Further Action and VOC2 may be acceptable. The long-term effectiveness and permanence of the institutional controls under VOC2 and VOC3 would be nearly equal; however, the long-term reliability and permanence of VOC3 would be increased relative to VOC2 with the addition of engineered controls, which would control migration of soil gas into indoor air. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a, levels acceptable for restricted use would be achieved. Under Non-VOC4a, Non-VOC3, and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water, and monitoring would be performed to verify that residual contamination does not impact groundwater. The long-term effectiveness and permanence of Non-VOC3 would be increased relative to Non-VOC2 with the addition of bioventing. The criterion for long-term effectiveness and permanence would not be met under No Further Action.	Because engineered controls under VOC3 would limit or eliminate the vapor inhalation pathway, mobility of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2 and No Further Action. Reduction by natural processes only would occur under VOC2 and No Further Action. Toxicity, mobility, and volume would be reduced at the site by bioventing under Non-VOC3 and upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action. Only Non-VOC3 would meet the statutory preference for treatment.	VOC2 and VOC3 would be effective immediately. Implementation of VOC2 would entail no significant adverse risks to the environment or health of the community and workers. Short-term risks during the implementation of engineered controls under VOC3 would be minimal because of limited disruption of shallow soils. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Non-VOC3 would require the installation of the biovent system which could likely be accomplished in a relatively short period of time. However, the biovent system would likely require many months to years of operation before RAOs could be achieved. Non-VOC3 would not be immediately protective of surface water. PRL S-043 could potentially impact surface water prior to bioventing achieving CLs for protection of surface water. Short-term risks during bioventing (Non-VOC3) and excavation (Non-VOC4a and Non-VOC4b) could be managed.	All of the evaluated alternatives are implementable. Current site use would be disrupted during bioventing (Non-VOC3) and excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $196,000 Non-VOC2 = $262,000 Non-VOC3 = $548,000 Non-VOC4a = $204,000 Non-VOC4b = $125,000
PRL S-044	VOC3 would be the most protective for SSG for future use if a new building is constructed; however, both VOC2 and VOC3 would prohibit unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective for soil because contaminants would be physically removed. Non-VOC2 would protect human health by prohibiting unrestricted use and would minimize or eliminate impacts to surface water using sediment controls. No Further Action would not be protective considering risks are greater than the risk management range for unrestricted use.	All evaluated alternatives would comply with ARARs.	Risks are greater than the risk management range for unrestricted use and at the low end of the risk management range for restricted use. Risks under VOC3 would be acceptable. Risks under VOC2 may be acceptable. Risks under No Further Action would not be acceptable. The long-term effectiveness and permanence of the institutional controls under VOC2 and VOC3 would be nearly equal; however, the long-term reliability and permanence of VOC3 would be increased relative to VOC2 with the addition of engineered controls, which would control migration of soil gas into indoor air. The criterion for long-term effectiveness and permanence would not be met under No Further Action except to the extent that VOCs would attenuate naturally, which would provide some degree of long-term reduction in risk at the site. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water. The criterion for long-term effectiveness and	Because engineered controls under VOC3 would limit or eliminate the vapor inhalation pathway, mobility of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2 and No Further Action. Reduction by natural processes only would occur under VOC2 and No Further Action. None of the evaluated alternatives meet the statutory preference for treatment. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	VOC2 and VOC3 would be effective immediately. Implementation of VOC2 would entail no significant adverse risks to the environment or health of the community and workers. Short-term risks during the implementation of engineered controls under VOC3 would be minimal because of limited disruption of shallow soils. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4b).	VOC2 = $88,000 VOC3 = $196,000 Non-VOC2 = $173,000 Non-VOC4a = $1,610,000 Non-VOC4b = $3,050,000

Site	Protection of Human Health and the Environment	Compliance with ARARs	Long-term Effectivess and Performance	Reduction in Toxicity, Mobility, and Volume	Short-term Effectiveness	Implementability	Cost (PV_{30}) (see footnote below table)
			permanence would not be met under No Further Action.				
PRL S-045	VOC2 would be the most protective for SSG because unrestricted use would be prohibited. Non-VOC4b would be the most protective because contaminants would be physically removed. Non-VOC2 would protect human health by prohibiting unrestricted use and would minimize or eliminate impacts to surface water using surface cover. No Further Action may be protective of human health, but potential impacts to water quality would remain.	All evaluated alternatives would comply with ARARs.	Risks are within the risk management range for unrestricted use and less than the risk management range for restricted use. Risks under VOC2 would be acceptable. Risks under No Further Action may be acceptable. The long-term effectiveness and permanence of the institutional controls under VOC2 would depend on the maintenance, monitoring, and enforcement of the institutional controls. Current risks are within the risk management range for unrestricted use and less than the risk management range for restricted use. Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water. The criterion for long-term effectiveness and permanence would not be met under No Further Action.	Reduction by natural processes only would occur under VOC2, Non-VOC2, and No Further Action. None of the evaluated alternatives meet the statutory preference for treatment. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4b.	VOC2 would be effective immediately. Implementation of VOC2 would entail no significant adverse risks to the environment or health of the community and workers. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4b) could be managed.	All of the evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4b).	VOC2 = $88,000 Non-VOC2 = $173,000 Non-VOC4b = $212,000
PRL T-032	VOC3 would be the most protective for SSG for future use if a new building is constructed; however, both VOC2 and VOC3 would prohibit unrestricted use. Considering risks are greater than the risk management range for restricted use, VOC2 would not be protective for future use if a new building is constructed. Non-VOC4a and Non-VOC4b would be the most protective for soil because contaminants would be physically removed. Under Non-VOC2 and Non-VOC3, TPH would degrade over time with monitoring to verify that contamination does not impact groundwater. Non-VOC3 would be protective. Non-VOC2 would be protective of human health and surface water and may be protective of groundwater. No Further Action would not be protective considering risks are greater than the risk management range for unrestricted use.	All evaluated alternatives except VOC2 would comply with ARARs.	Risks are greater than the risk management range for both unrestricted and restricted use. Risks under VOC3 would be acceptable. Risks under VOC2 and No Further Action would not be acceptable. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a, levels acceptable for restricted use would be achieved. Under Non-VOC4a, Non-VOC3, and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water, and monitoring would be performed to verify that residual contamination does not impact groundwater. The long-term effectiveness and permanence of Non-VOC3 would be increased relative to Non-VOC2 with the addition of bioventing. The criterion for long-term effectiveness and permanence would not be met under No Further Action.	Because engineered controls under VOC3 would limit or eliminate the vapor inhalation pathway, mobility of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2 and No Further Action. Toxicity, mobility, and volume would be reduced at the site by bioventing under Non-VOC3 and upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under VOC2, VOC3, Non-VOC2, and No Further Action. Only Non-VOC3 would meet the statutory preference for treatment.	VOC3 would be effective immediately. Short-term risks during the implementation of engineered controls under VOC3 would be minimal because of limited disruption of shallow soils. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Non-VOC3 would require the installation of the biovent system which could likely be accomplished in a relatively short period of time. However, the biovent system would likely require many months to years of operation before RAOs could be achieved. Non-VOC3 may not be immediately protective of surface water; however the one location with TPH contamination greater than CLs for protection of surface water is located beneath Building 1023. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) and bioventing (Non-VOC3) could be managed.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b) and bioventing (Non-VOC3).	VOC2 = $88,000 VOC3 = $159,000 Non-VOC2 = $446,000 Non-VOC3 = $1,087,000 Non-VOC4a = $878,000 Non-VOC4b = $799,000

Site	Protection of Human Health and the Environment	Compliance with ARARs	Long-term Effectivess and Performance	Reduction in Toxicity, Mobility, and Volume	Short-term Effectiveness	Implementability	Cost (PV_{30}) (see footnote below table)
SA 004	VOC3 would be the most protective for SSG for future use if a new building is constructed; however, both VOC2 and VOC3 would prohibit unrestricted use. Non-VOC4b would be the most protective for soil because contaminants would be physically removed. Non-VOC2 would protect human health by prohibiting unrestricted use. No Further Action would not be protective considering risks are greater than the risk management range for unrestricted use.	All evaluated alternatives would comply with ARARs.	Risks are greater than the risk management range for unrestricted use and within the risk management range for restricted use. Risks under VOC3 would be acceptable. Risks under VOC2 may be acceptable. Risks under No Further Action would not be acceptable. The long-term effectiveness and permanence of the institutional controls under VOC2 and VOC3 would be nearly equal; however, the long-term reliability and permanence of VOC3 would be increased relative to VOC2 with the addition of engineered controls, which would control migration of soil gas into indoor air. The criterion for long-term effectiveness and permanence would not be met under No Further Action except to the extent that VOCs would attenuate naturally, which would provide some degree of long-term reduction in risk at the site. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC2, residual contamination would remain; however, institutional controls would provide continued protection of human health. The criterion for long-term effectiveness and permanence would not be met under No Further Action.	Because engineered controls under VOC3 would limit or eliminate the vapor inhalation pathway, mobility of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2 and No Further Action. Reduction by natural processes only would occur under VOC2 Non-VOC2, and No Further Action. None of the evaluated alternatives meet the statutory preference for treatment. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4b.	VOC2 and VOC3 would be effective immediately. Implementation of VOC2 would entail no significant adverse risks to the environment or health of the community and workers. Short-term risks during the implementation of engineered controls under VOC3 would be minimal because of limited disruption of shallow soils. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4b) could be managed.	All of the evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4b).	VOC2 = $88,000 VOC3 = $196,000 Non-VOC2 = $108,000 Non-VOC4a = $171,000 Non-VOC4b = $92,000
SA 045	Non-VOC4a and Non-VOC4b would be the most protective because contaminants (i.e., PAHs and TPH) would be physically removed. Under Non-VOC2 and Non-VOC3, contaminants would degrade over time with monitoring to verify that contamination does not impact groundwater. Non-VOC3 would be protective. Non-VOC2 would effectively prevent unrestricted use and may also be protective of groundwater.	All evaluated alternatives except No Further Action would comply with ARARs.	Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. However, Non-VOC2, Non-VOC3, and Non-VOC4a would also be effective and permanent given that institutional controls would provide continued protection of human health, and monitoring would be performed to verify that residual contamination does not impact groundwater. Current risks for restricted use are at the low end of the risk management range.	Only Non-VOC3 would meet the statutory preference for treatment. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during bioventing (Non-VOC3) and excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	Non-VOC2 = $328,000 Non-VOC3 = $458,000 Non-VOC4a = $444,000 Non-VOC4b = $365,000
SA 049	Non-VOC4a and Non-VOC4b would be the most protective because contaminants would be physically removed. Non-VOC2 would effectively prevent unrestricted use and minimize or eliminate impacts to surface water. No Further Action would be protective of human health, but potential impacts to water quality would remain.	All evaluated alternatives except No Further Action would comply with ARARs.	Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water. Current risks (without arsenic) for restricted use are less than the risk management range.	Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	Non-VOC2 = $124,000 Non-VOC4a = $203,000 Non-VOC4b = $129,000

Site	Protection of Human Health and the Environment	Compliance with ARARs	Long-term Effectivess and Performance	Reduction in Toxicity, Mobility, and Volume	Short-term Effectiveness	Implementability	Cost (PV_{30}) (see footnote below table)
SA 055	Non-VOC4b would be the most protective because contaminants would be physically removed. Non-VOC2 would effectively prevent unrestricted use and minimize or eliminate impacts to surface water.	All evaluated alternatives except No Further Action would comply with ARARs.	Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water. Current risks for restricted use are less than the risk management range.	Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4b).	Non-VOC2 = $115,000 Non-VOC4b = $89,000
SA 060	Non-VOC4a and Non-VOC4b would be the most protective because contaminants (i.e., TPH) would be physically removed. Under Non-VOC2 and Non-VOC3, contaminants would degrade over time with monitoring to verify that contamination does not impact groundwater. Non-VOC3 would be protective in the long-term, but short-term impacts to surface water may not be addressed. Non-VOC2 would effectively prevent unrestricted use and minimize or eliminate impacts to surface water. Non-VOC2 may also be protective of groundwater. No Further Action would be protective of human health, but potential impacts to groundwater would remain.	All evaluated alternatives except No Further Action would comply with ARARs.	Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of surface water, and monitoring would be performed to verify that residual contamination does not impact groundwater. Non-VOC3 would also be effective and permanent given that monitoring would be performed to verify that residual contamination does not impact water quality. Current risks for restricted use (excluding cadmium and thallium) are less than the risk management range.	Only Non-VOC3 would meet the statutory preference for treatment. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during bioventing (Non-VOC3) and excavation (Non-VOC4a and Non-VOC4b) could be managed. Non-VOC3 would not be immediately protective of surface water.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	Non-VOC2 = $267,000 Non-VOC3 = $523,000 Non-VOC4a = $191,000 Non-VOC4b = $92,000
SA 063	Non-VOC4a and Non-VOC4b would be the most protective because contaminants would be physically removed. Non-VOC2 would effectively prevent unrestricted use and minimize or eliminate impacts to surface water. Although ICs alone under Non-VOC2 may not be protective of human health for restricted use, the surface cover component would minimize or eliminate human exposure.	Non-VOC4a and Non-VOC4b would comply with ARARs. Non-VOC2 may comply with ARARs. No Further Action would not comply with ARARs.	Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water. Current risks for restricted use are greater than the risk management range.	Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	Non-VOC2 = $304,000 Non-VOC4a = $452,000 Non-VOC4b = $517,000

Site	Protection of Human Health and the Environment	Compliance with ARARs	Long-term Effectivess and Performance	Reduction in Toxicity, Mobility, and Volume	Short-term Effectiveness	Implementability	Cost (PV_{30}) (see footnote below table)
SA 066	VOC3 would be the most protective for SSG, but VOC2 would effectively prevent unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective for soil because TPH-D would be physically removed. Under Non-VOC2 and Non-VOC3, TPH-D would degrade over time with monitoring to verify that contamination does not impact groundwater. Non-VOC3 would be protective. Non-VOC2 would likely be protective because TPH-D contamination is limited. No Further Action would be protective of human health, but potential impacts to groundwater would remain.	All evaluated alternatives except VOC2 and No Further Action would comply with ARARs.	Risks under VOC3 would be acceptable. Risks for restricted use are greater than the risk management range. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. However, Non-VOC2, Non-VOC3, and Non-VOC4a would also be effective and permanent given that monitoring would be performed to verify that residual contamination does not impact groundwater. Current risks for restricted use are less than the risk management range.	Mobility and volume of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2. Only Non-VOC3 would meet the statutory preference for treatment. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	VOC2 and VOC3 would be effective immediately. VOC3 would involve limited disruption of shallow soils. Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during bioventing (Non-VOC3) and excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Coordination with the SVE program would be required for the VOC alternatives. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b). The target excavation volume is adjacent to Building 357, which could complicate excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $190,000 Non-VOC2 = $248,000 Non-VOC3 = $458,000 Non-VOC4a = $167,000 Non-VOC4b = $88,000
SA 096	Non-VOC4a and Non-VOC4b would be the most protective because TPH would be physically removed. Under Non-VOC2 and Non-VOC3, TPH would degrade over time with monitoring to verify that contamination does not impact groundwater. Non-VOC3 would be protective. Non-VOC2 would likely be protective of groundwater because TPH contamination is limited. No Further Action would be protective of human health, but potential impacts to water quality would remain.	All but No Further Action would comply with ARARs.	Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. However, Non-VOC2, Non-VOC3, and Non-VOC4a would also be effective and permanent given that monitoring would be performed to verify that residual contamination does not impact groundwater. Current risks for restricted use (excluding arsenic) are less than the risk management range.	Only Non-VOC3 would meet the statutory preference for treatment. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during bioventing (Non-VOC3) and excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	Non-VOC2 = $248,000 Non-VOC3 = $523,000 Non-VOC4a = $201,000 Non-VOC4b = $122,000
SA 097	VOC4 would be the most protective for SSG because volume and concentrations of VOCs would be reduced. VOC3 would provide additional protection compared to VOC2. VOC2 would effectively prevent unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective for soil because contaminants (i.e., VOCs, metals, PCBs, TPH, and 4-chloroaniline) would be physically removed. Under Non-VOC2, contaminants would degrade over time with monitoring to verify that contamination does not impact groundwater. Non-VOC2 would effectively prevent unrestricted use and minimize or eliminate impacts to surface water. Non-VOC2 may also be protective of groundwater. No Further Action may be protective of	All but VOC2 and No Further Action would comply with ARARs. VOC2 may comply with ARARs.	Risks under VOC2 may be acceptable. Risks under VOC3 and VOC4 would be acceptable. Risks for restricted use are within the risk management range. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water, and monitoring would be performed to verify that residual contamination does not impact groundwater.	Mobility and volume would be significantly reduced under VOC4. Mobility and volume of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	VOC2, VOC3, and VOC4 would be effective immediately. VOC3 would involve limited disruption of shallow soils. VOC4 could require installation of additional wells but short-term risks could be managed. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Coordination with the SVE program would be required for the VOC alternatives. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $173,000 VOC4 = $203,000 Non-VOC2 = $284,000 Non-VOC4a = $170,000 Non-VOC4b = $91,000

Site	Protection of Human Health and the Environment	Compliance with ARARs	Long-term Effectivess and Performance	Reduction in Toxicity, Mobility, and Volume	Short-term Effectiveness	Implementability	Cost (PV_{30}) (see footnote below table)
	human health, but potential impacts to groundwater and surface water would remain.						
SA 100	VOC4 would be the most protective for SSG because volume and concentrations of VOCs would be reduced. VOC3 would provide additional protection compared to VOC2. VOC2 would effectively prevent unrestricted use. Non-VOC4a and Non-VOC4b would be the most protective for soil because contaminants would be physically removed. Non-VOC2 would effectively prevent unrestricted use and minimize or eliminate impacts to surface water.	All but VOC2 and No Further Action would comply with ARARs. VOC2 may comply with ARARs.	Risks under VOC3 and VOC4 would be acceptable. Risks under VOC2 may be acceptable. Risks are greater than the risk management range for unrestricted use and within the risk management range for restricted use. Non-VOC4b would be the most effective and permanent for soil because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water.	Mobility and volume would be significantly reduced under VOC4. Mobility and volume of VOCs in SSG would be reduced to a greater extent under VOC3 compared to VOC2. Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	VOC2, VOC3, and VOC4 would be effective immediately. VOC3 would involve limited disruption of shallow soils. VOC4 could require installation of additional wells but short-term risks could be managed. Non-VOC2 would require the least amount of time to implement for soil, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Coordination with the SVE program would be required for the VOC alternatives. Current site use would be disrupted during excavation (Non-VOC4a and Non-VOC4b).	VOC2 = $88,000 VOC3 = $173,000 VOC4 = $191,000 Non-VOC2 = $175,000 Non-VOC4a = $257,000 Non-VOC4b = $89,000
SA 109 (F2)	Non-VOC4a and Non-VOC4b would be the most protective because contaminants (i.e., metals, pesticides, PCBs, and radionuclides) would be physically removed. Non-VOC2 would effectively prevent unrestricted use and minimize or eliminate impacts to surface water.	All evaluated alternatives except No Further Action would comply with ARARs.	Non-VOC4b would be the most effective and permanent because levels acceptable for unrestricted use would be achieved by excavation and offsite disposal. Under Non-VOC4a and Non-VOC2, residual contamination would remain; however, institutional controls and engineered controls would provide continued protection of human health and surface water. Current risks for restricted use (excluding arsenic) are at the low end of the risk management range.	Toxicity, mobility, and volume would be reduced at the site upon excavation under Non-VOC4a and Non-VOC4b. Reduction by natural degradation processes only would occur under Non-VOC2 and No Further Action.	Non-VOC2 would require the least amount of time to implement, and contaminated soil would not be disturbed. Short-term risks during excavation (Non-VOC4a and Non-VOC4b) could be managed.	All evaluated alternatives are implementable. Excavation (Non-VOC4a and Non-VOC4b) within the creek may be difficult.	Non-VOC2 = $200,000 Non-VOC4a = $1,605,000 Non-VOC4b = $3,969,000

Notes: a State and community acceptance are modifying criteria that will be evaluated during the Proposed Plan public comment period.
PV_{30} Present value worth 30-year costs; no costs are associated with No Further Action alternative